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# Transatlantic Trade and Investment Partnership: Implications to Global Wine Market

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TRANSATLANTIC TRADE AND INVESTMENT PARTNERSHIP:  
IMPLICATIONS TO GLOBAL WINE MARKET

A Thesis

Submitted to the Graduate Faculty of the  
Louisiana State University  
and Agricultural and Mechanical College  
in partial fulfillment of  
the requirements for the degree of  
Master of Science

in

The Department of Agricultural Economics  
and Agribusiness

by  
Natalia Antosova  
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## **ABSTRACT**

Transatlantic Trade and Investment Partnership was first introduced in 2013, with the goal of liberalization of the trade and investments, better coordination of trade by specific regulations, enhancing intellectual property protection and lifting government's impediments to trade. This Thesis is concerned on potential implications of the TTIP on the wine industry in the European Union and particular consequences related to EU wine producers. The literature review of this paper is developed with the purpose to bring general knowledge in the matter of the TTIP. In addition, linkages of the TTIP with the political economy are provided in the latter part of this chapter. We conducted our methodological approach through the Gravity model in the international agricultural trade. The pooled linear regression analysis was utilized, where the dependent variable was wine trade intensity. We have discovered variables, which directly affect the fluctuations in the wine trade intensity, as the income, distance, exchange rate volatility or relative wine endowment of a country. Remarkably interesting result conveyed by regression analysis was the fact, that developed country's membership in the FTA with the United States does not have significant impact on the trade intensity. The European Union is currently battling with the wine oversupply and low prices. Within the TTIP, additional amount of wine would be imported from the United States to the European Union. In addition, the conclusion of the TTIP agreement is questionable as the harmonization of the sanitary and phyto-sanitary standards in the wine sector with the lower standards of the United States might have direct impact on consumer's health. In spite of that, the cost-efficiency would be advantageous feature of lowering wine production standards. The last part of this Thesis is dedicated to the suggestions for further research, with respect to development of the TTIP negotiations in future time periods.

Keywords: TTIP, international trade, wine industry, European Union, United States

## **CHAPTER 1. INTRODUCTION**

The United States and European Union are the largest trading partners, as well as business rivals in the world. If we sum up their economies, they are worth more than half of the world GDP. However, there still exist ways to increase economic profits on the both sides of the Atlantic Ocean. New rounds of negotiations between United States and European Union have begun in July 2013, to establish the Transatlantic Trade and Investment Partnership (TTIP) between these two giant economies. As proposed by US policy makers, this agreement would lead to the liberalization of trade and investments, better coordination of trade by specific regulations, enhancing of intellectual property protection and lifting government policies as possible, to give way to free trade. Significant differences in multiple spheres are omnipresent, therefore these negotiations are often challenging for policymakers. For example in political systems, pertaining conflict in agricultural trade restrictions, food industry or the feeling of European states of losing their principal independence, as well as unsatisfactory EU policies perceived by US Congress.

The objective of TTIP is to build a great economic wall against rapidly growing Asian markets. This paper is focused on the impact of the TTIP on the agricultural markets, especially on wine sector in both countries. According to present figures, agriculture is the area that receives much support in both the European Union and the United States. Hence field of the agriculture is sensitive for talks about TTIP. From agricultural perspective, wine is the agricultural product of highest value, traded between EU and US traders. There is a high possibility that certain reduction in specific trade barriers would indisputably help to increase profits of both partners. The goal of this paper is to define the variables, which would have the most significant impact on



profit maximization in the world wine market. Also, we would like to bring a realistic *ex-ante* evaluation of the potential of TTIP and state, whether EU consumers have justified reasons to be fearful of the consequences of the TTIP.

The Gravity Model in international agricultural trade with wine will be applied to measure the impacts of the factors that might have potential impact on trade intensity between the EU and the USA. The reasoning for our findings will lead through the field of political economy.

The target audience for this Thesis is broad spectrum of scholars and academics in the field of international economics and trade, agricultural and wine economists, wine producers, consumers and wine enthusiasts, to policymakers at the national and supranational levels. It should also bring a certain level of rationality to those agents, who are fearful of TTIP agreement as well as to those, who are exceptionally excited about this never-seen-before economic and political cooperation of two giant economies.

## **Objectives**

The objective of this Thesis is to discover, whether the TTIP agreement, as a form of next step towards globalization, would bring economic benefits to wine producers in the European Union, even at the expense of non-monetary losses for consumers, which come together with TTIP. At first, we will gather the relevant information on proposed TTIP and its possible consequences stated by other authors. Secondly, we will obtain and process statistical data to create a Gravity Model in Agricultural Trade. A pooled linear regression will help us to discover the parameters that affect trade intensity in the wine sector between the EU and the USA. Finally, we will compare obtained results with expected outcomes from economic theory and state the conclusions of the research.

With the help of the vast of economic literature we will explore several scenarios that this agreement may take and their respective consequences on international trade with wine. As Pareto efficiency law implies, there is no effective way to make one agent better off without degrading the welfare of the other one. The same applies for the potential TTIP agreement. Essentially, we are trying to determine whether the losses of individual wine producers in the EU can be compensated by the increase in total welfare in the EU.

By this Thesis we intend to bring clear and complex answer to the question, how should the USA and the EU find compromise in different policies and regulations in order to gain benefits on both sides. By examining the roots of conflicts, which occur during negotiations between European and American wine producers and decision makers, we expect to gain better understanding to many of the disputes. With the help of Political economy we will see beyond the desires for more or less protectionism in the agriculture. We will be able to address the reasons of lobbyists' initiatives for more government protection within their field.

## CHAPTER 2. LITERATURE REVIEW

International agricultural trade is the subgroup of global international trade for goods with several characteristic features. First of all, the trade in commodities used to produce food supply has been the basis for creation of the economies and multilateral trade in the civilized world. Various differences between countries make each of them special for their resources, what encourages welfare gains from trade. (Koo and Kennedy, 2005).

Typically agricultural production comprises a smaller share on the overall production of developed countries, but it usually represents majority share in the case of less developed countries. On the contrary, the developed countries are still the greatest participants in international agricultural trade. Once the countries become developed, they tend to protect their agricultural industries by various trade barriers and distinct support measures. (Koo and Kennedy, 2005). However, general economic theory says that trade barriers lead to destabilization of the market, creating shocks at respective world markets, especially those of less developed countries.

According to World Bank (2013) the population of the European Union is more than 500 million people and its GDP is more than \$16.3 trillion what represents 23% of the world economy. As the data from U.S. Trade (2013) show, EU is the greatest trading partner of the United States, generating total imports and exports to almost \$650 billion. The emergence of new economies and slow economic growth over the past decade prompted policymakers from Brussels and Washington to create the alliance, a kind of economic bloc to enhance their economies and overall welfare. This idea has taken refined shapes when Transatlantic Trade and Investment Partnership model (TTIP) was first introduced. The aim of this alliance is liberalization of trade and investments, better coordination of trade by specific regulations,

enhancing intellectual property protection and lifting government policies as possible, to give way to a free trade. These negotiations between the European Union and the United States are often critical and challenging because significant structural differences are present the political systems, legislation and trade policies. This Thesis is focused on the impact of TTIP on agricultural markets, particularly on the wine sector in the European Union. According to present figures, the agriculture is the area that receives much support in the European Union, therefore it is sensitive in connection with lifting trade barriers in order to achieve free trade with the United States. From agricultural perspective, wine is agricultural product of the highest value traded between European and US traders. There is a high possibility that certain reduction in specific trade barriers would absolutely help to increase profits of both partners (Abboushi, 2014). As the Rickard et. Al, (2014) imply, three components that would be used to enhance mutual trade between European Union and the United States are increasing market access, encouraging harmonization of regulations and development of common trading rules.

Akhtar and Jones, (2013) think that negotiations about bringing TTIP into reality would be held without major critical debates, while Fontagné, Gourdon, and Jean (2013) assert that discussions about domestic regulations will be crucial and will take much more time to agree on compromising decisions.

## **Trade Creation**

In relation to TTIP, the question can be asked regarding how much of new trade will be created and conversely, who will bear the costs of the TTIP. In other words, where will the trade diversion occur? Let's assume that we have three countries. Country 1 concludes a free trade area (FTA) with the country 2. The prices of goods and services traded among members of the same FTA are lower by the amount of tariffs and customs that were present prior the formation

of FTA. The principle of the trade creation is that a free trade area creates additional trade volume and value that would not have existed otherwise, resulting in increase in supply from the more efficient producer. Hence, a trade creation contributes to countries' national welfares. For the 3rd country, which is left outside of the FTA, it represents a diversion of its trade with respect to country 1. Koo et al. (2006) claimed that the trade creation results in the expansion of trade volume through the replacement of domestic production by low-priced imports from trading partners. Figure 1 shows the effects of trade creation in a partial equilibrium model. Explained by Ramirez (2016), the initial price of the imported good sold in country 'j' is  $P_j$ . This price represents the price in producer country 'i' augmented by the import tariff (denoted by 'r') imposed by country 'j'. Prior the integration through FTA, country 'j' was importing amount of  $Q_3-Q_2$  from the country 'i'. Once the FTA is concluded, imports are no longer bearing the tariff, thus the price can decrease to the level of  $P_i$ . The importer country is now allowed to import the amount of good as  $Q_1-Q_4$  of the good. Quantities imported multiplied by respective prices prior and after the lifting of a tariff yield the areas that we can further study. Area a signifies the change in the producer/consumer surplus. Area b stands for the dislocation of domestic production. Area c denotes country j's financial gains from the import tariff. Area d represents the rise of consumption in importer country. The final trade outcome can be calculated as the addition of the areas b and d. If the resulting value is positive, trade creation occurs. In this case the consumers' welfare outweighs producer's losses incurred by replacement of domestic production by foreign imports. If the opposite is true and trade diversion takes place rather than trade creation, a consumer welfare falls short of producer's losses (in absolute values), thus overall trade outcome is negative.

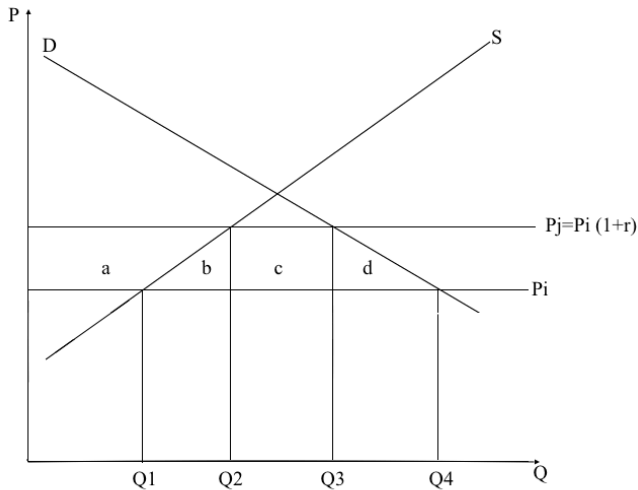


Figure 1. Trade Creation.

As an example, these authors bring again the case of the United States and Mexico under NAFTA (North American Free Trade Area). Mexico has comparative advantage in producing fruits and vegetables thanks to different climatic conditions than USA. Thus, USA increased the imports of Mexican fruits and vegetables and trade creation occurred. The consumers in the US enjoy additional welfare gains from cheaper fruits and vegetables imported, while the losses of US producers are less significant.

### Trade Diversion

The conclusion of a FTA does not make the opportunity for the new trade, but the trade is diverted from more efficient producer outside of the FTA to the less efficient but preferred one, the member of the new FTA. Based on this principle, country's overall efficiency decreases. Koo et al. (2006) define trade diversion as a shift in the trade from the most efficient producer (mostly third countries') to other producers from the same FTA, usually accompanied by less efficient production and higher prices. Figure 2 refers to the process of trade diversion. As

Ramirez (2016) further defends this three-country model, before the integration of countries ‘i’ and ‘j’ to a single FTA, the country ‘j’ has imposed import tariff on the good from the country ‘k’. The price of a good in country ‘j’ is  $P_j = P_k (1 + r)$ , where  $P_k$  is the amount of tariff imposed on country ‘k’s imports. We assume that country ‘k’ is also the most efficient exporter. However, when the FTA between countries ‘i’ and ‘j’ is signed, country ‘i’ becomes the lowest price importer. Country ‘k’ is left out, disadvantaged by the fact that the less efficient producer (country ‘i’) took over ‘k’s portion of the market. Prior to the integration of countries ‘i’ and ‘j’, country ‘k’ was importing  $Q_3 - Q_2$  quantity of products to country ‘j’. After the integration of countries ‘i’ and ‘j’ through FTA, country ‘i’ became the low cost importer for country ‘j’, with amount of imports  $Q_4 - Q_1$ . By this mean, country ‘k’s trade was downgraded and trade diversion occurred. In practice, though, we have to account for the extent of both trade creation and trade diversion happening in the same time. The trade effect is reflected by the areas b and d, while area e represents lost tariff revenues, no longer apparent to the consumers in the importing country.

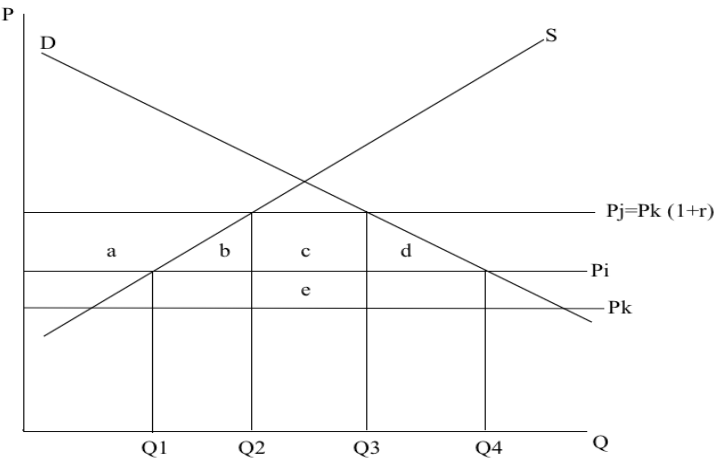


Figure 2. Trade Diversion.

Kennedy et al. (2006) have suggested a real life example, where China, India and Mexico were all producers of textiles. The United States had import tariffs on imported textile from these countries. However, NAFTA lifted these trade barriers in favor of Mexico, but tariffs stayed unchanged with respect to China and India, which were formerly the cheapest producers. After lifting tariffs on Mexican textiles, Mexico became the cheapest textile producers, leaving China and India worse off.

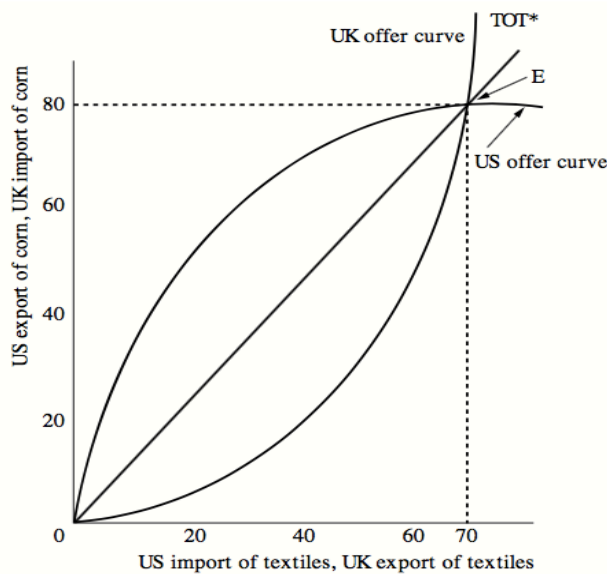
The concept of trade creation and trade diversion applies heavily on the world wine trade. Because the agriculture is sensitive on any price changes, tariffs and MFN provisions, EU wine producers are fearful that even if global welfare would be increased and trade creation in wine market would occur, the EU wine market would be flooded by cheap wine from US producers.

### **Terms of Trade and Offer Curves**

The concept of offer curves has been developing over long period of time. Sir John Stuart Mill first explained the idea of offer curves, which was later interpreted graphically by Alfred Marshall and Francis Y. Edgeworth. This model is valid under the assumptions where in the state of the perfect competition, the two countries A and B trade two commodities, say X and Y. Next, the assumption of the full employment, specialization in production and comparative costs principle apply (Kennedy, 2014). After these assumptions are satisfied, the offer curve is defined as the amount of good X that country A is willing to export in exchange for certain amount of imports of good Y from country B. This principle is based on relative prices of two commodities, where the country's offer is represented by alternative terms of trade. Koo and Kennedy (2005) provide an example, where the United States has comparative advantage in production of corn, while the United Kingdom has a comparative advantage in production of textiles. Figure 3. represents an international equilibrium, where country A is the United Kingdom exporting its



textiles, and country B is the United States exporting the corn. International equilibrium is at the intersection of these offer curves, denoted by point E. The equilibrium terms of trade is represented by the slope of ray from the origin going through the point E. If for example England increases its willingness to trade for various reasons, it starts to supply more of textiles for each unit of corn. By doing so, UK offer curve will expand and the straight-line denoting the terms of trade will rotate downwards, towards horizontal axis. With respect to prices, the UK's increased willingness to trade has negative impact on the relative price of textiles and positive effect on relative price of U.S.'s corn. The same principles apply for the United States, but increase in the U.S.'s willingness to trade causes the straight line to rotate towards vertical axis. In either case, present figure defines, that the steeper the TOT straight-line is, the better terms of trade for the exporter of good X, and worse for the exporter of the good Y.



Source: Koo and Kennedy, 2005

Figure 3. Offer Curves in The International Equilibrium.

## **The Gravity Model of Trade**

The Gravity Model is a concept, which uses an adapted idea from Newton's Gravitation law. Van Bergeijk, S. Brakman (2010) described the Gravity model as an interaction between economic agents depending on their respective sizes, while these agents are attracted to each other depending on the distance between them. The larger they are, the larger probability that they will trade, the further they are, the less probable is their economic interaction. Van Bergeijk and S. Brakman also pointed out, that the measure of distance is questionable, because it can be measured in units of distance or in monetary value of shipping. As Frenkel (1999) executed, since we live in globalizing world, the cost of shipping is decreasing and thus the gravitation of economic agents is less impeded by distance measure than ever before. Linnemann (1966) added several important variables to Gravity model, making it useful for international trade, for example population size, economic distance, country's relative endowments, trade preferences, or interestingly- common trade history and cultural backgrounds were new variables with significant impact on bilateral trade flows . These variables have either quantitative or qualitative characters, so called dummy variables. These can be categorized as reflecting either costs or trade preference factor. The following authors extended Linnemann's findings of Gravity model. Geraci and Prewo (1977) included the common language into the measure and found out that it has positive relationship with bilateral trade. Kolhagen (1978) found the negative impact on trade volume between countries caused by exchange rate volatility. As Grant & Lambert (2005) concluded, the Gravity model is in fact a universal and broadly applicable measure of bilateral trade flows between countries, since it has performed noticeably well in measuring the pre and post integration economic positions of respective states. Next, we are going to include several specific variables into the model measuring the impact of TTIP agreement on bilateral trade

flows. The Gravity Model formula is the tool for predicting bilateral trade flows of goods and services between countries, based on economic sizes of respective countries and the distances among them. Economic size is always in terms of GDP measurement. The basic gravity model formula is as follows:

$$F_{ij} = G \left( \frac{M_i^{\beta_1} M_j^{\beta_2}}{D_{ij}^{\beta_3}} \right)$$

Where F is the trade flow, M is the economic mass of the country, D is the distance and G is a constant. This model is widely used in international trade analysis to assess the impact of treaties and various alliances on trade and also for the testing the efficiency of existing FTA as NAFTA or WTO. However, this model is very flexible and various variables, dummy variables can be added to the model. Any factor that the researcher logically assumes as relevant variable for estimation of gravity model can be used, while regression output, particularly p value of respective explanatory variables tells whether it is relevant to add them to the model. Because very small amount of real life relationships are linear, the gravity model can be also transformed by logarithmic transformations. For example log-linear transformation of gravity model, proposed by Anderson (1979), allows the reader to interpret the values obtained as elasticities.

### **Single Commodity Gravity Model in the International Agricultural Trade**

Commodity-specific gravity model is a concept adopted from general form of Gravity model, but yet focused on specific commodity. This kind of model transformation has two spheres. The first aspect was discovered by Phren & Brümmer (2011), since the economic effects of decisions made in particular field are reflected on specific commodities. For these reasons they implied, that disaggregation of data to more specific groups has to be followed by

aggregation on relevant micro-level. The model then shows more detailed spectrum of variables that influence specific commodities, what can not be obtained through general macro analysis. Koo et al. (2006) redefined the second aspect in this matter. They applied gravity model to international agricultural trade, where they stated certain variables as necessary in obtaining comparable results within agricultural field. Besides the traditional variables of GDP of each country and distance between them, they added a group of dummy variables reflecting trade creation and diversion effects depending on the country's membership in FTAs, the measure that reflects sharing of cultural similarities as language, historical linkages, exchange rates and relative endowments of the commodity, to reflect comparative advantage. Ramirez (2016) reports, that in the Gravity model applied to agricultural trade the endogeneity is not expected, since neither GDP nor dummy variables linked to FTAs are not dependent on the amount of agricultural trade. Eichengreen & Irwin (1998) affirmed their statement that countries with a common trading history, whether politically enforced or voluntary adopted one, continue in their economic cooperation. The appropriate example is intra-EU trade, particularly the case of Slovakia trading mostly with Czech Republic, which used to be a single country during the Soviet regime. Koo et al. (2006) proposed this form of Gravity model, further cited by Ramirez, (2015) as

$$X_{ij} = a_1 + a_2y_i + a_3y_j + a_4d_{ij} + a_5PTA_{c_{ij}} + a_6PTA_{d_{ij}} + a_7S_{ij} + e_{ij}$$

Where  $X_{ij}$  is dependent variable representing bilateral trade flows between countries i and j ,  $y_i$  is the GDP of country i,  $y_j$  denotes the GDP of country j,  $d_{ij}$  stands for the distance between countries i and j,  $PTA_{c_{ij}}$  is a dummy variable representing trade creation, the case when both countries are members of FTA. (Note: being member of FTA does not qualify us to be sure that trade creation took place, as we know that political strategies often play role in concluding FTAs.

Further research is required on specific FTA to prove the actual trade creation effects on particular pair of countries).  $PTA_{d_{ij}}$  is a dummy variable for trade diversion, if the country is not member of FTA,  $S_{ij}$  is a dummy variable that comprises all of the other effects on trade flow and  $e_{ij}$ - error term, used in a stochastic estimation and regression analysis.

### **The Overview of the EU-USA Wine Trade**

The EU-28 is currently the largest importer and exporter of wine in the world. More specifically, in 2015 the wine was imported in the value of \$3.2 billion (1.4 billion liters), while exported wine was worth \$11.9 billion (2.1 billion liters), (Wine Annual, 2015). As Table 1 shows, France, Italy and Spain are leading EU wine producers, however Germany as new member of top 5 wine producing countries overcame Portugal with long tradition in wine making. Grubbing up policies imposed by CAP during last decades would financially remunerate EU wine producers, who voluntarily ceased their wine businesses. Thanks to these and similar measures listed by Antořová (2015), the amount of wine produced is successfully decreasing and Europe is getting out of so called 'wine lake'. Per capita consumption is also decreasing in traditional winery countries. The reasons are wide spread anti-alcohol campaigns and driving laws ultimately restricting alcohol. Tables 1 and 2 refer to the fact, that the EU is truly the leading 'country' with respect to wine market, both in the amount of wine traded and its economic value.

As we can see from the Table 2, the United States is the largest importer of EU wine and hence the EU's most important trading partner. The European Union is openly engaged in international trade and imports the world wines as well. Table 3 refers to the fact that United States stand at the position of the 3<sup>rd</sup> largest trading partner of the EU with respect to the value of wine traded and the 4<sup>th</sup> place according to the amount of wine exported to EU.

Table 1. EU Largest Wine Producers.

	Million liters	Value (million \$)
France	4650	\$ 9 200
Italy	4442	\$ 6000
Spain	4161	\$ 3000
Germany	930	\$ 1100
Portugal	589	\$ 817.7
Romania	370	\$ 513.6
Greece	290	\$ 460.3
Other EU-28 countries	853	\$ 1200
EU-28 total	16285	22, 291.6

Source: Wine Annual, 2015

Table 2. The Largest Export of wine Destinations for the EU.

	Million liters	Value (\$ Mln)
USA	523	\$ 3518
Switzerland	167	\$ 1146
Japan	150	\$ 972
Canada	171	\$ 951
China	220	\$ 855
Hong Kong	27	\$ 732
Russia	279	\$ 681
Singapore	18	\$ 456
Norway	67	\$ 412
Australia	28	\$ 225

Source: Wine Annual, 2015

From the perspective of the United States' engagement in wine trade with the European Union, summarized these figures. Table 4 lists the largest export destinations for the United States, where the EU stands for the first position with the largest value of wine imported from the United States.

Table 3. EU 28 Wine Imports by Trading Partner.

	Million liters	Value (\$ Mln)
Chile	301	\$ 802
Australia	330	\$ 566
United States	227	\$ 526
South Africa	300	\$ 510
New Zealand	67	\$ 414
Argentina	61	\$ 217
Switzerland	1	\$ 53

Source: Wine Annual, 2015

Table 4: Top US Wine Export Markets by Country.

Country	Value (\$Mln)
EU	\$ 622
Canada	\$ 461
Hong Kong	\$ 97
Japan	\$ 96
China	\$ 56
Nigeria	\$ 29
Mexico	\$ 26
South Korea	\$23
Switzerland	\$ 21
Singapore	\$ 15

Source: The Drink Business, 2016

American wine production is summarized in Table 5. Thanks to climatic conditions and relatively adaptable nature of grapes to almost any kind of soil, California with its desert climatic conditions is the most productive American wine state, followed by Washington or New York, where the climate is much less severe but white varieties are yet prevalent there.

With a purpose of expressing a complex situation in current wine trade, Table 6 summarizes the top ten US states with the highest consumption of wine per capita. We will consider this information

later in the paper, with respect to the distance measure between main shipping ports in the European Union, and the particular US states that exhibit the highest wine consumption respectively.

Table 5. Top 10 Wine Producing States by Volume and Value.

Rank	State	Gallons	Number of wineries
1	California	787,047,749	3,782
2	Washington	34,712,644	681
3	New York	28,900,557	320
4	Pennsylvania	10,278,722	182
5	Oregon	7,964,417	599
6	Vermont	4,315,420	97
7	Ohio	3,582,902	143
8	Michigan	2,334,036	137
9	Kentucky	2,241,527	85
10	Texas	1,026,465	204

Source: The National Association of American Wineries, U.S. Tax and Trade Bureau, 2014

The TTIP agreement, if concluded by the European Union and the United States would become the world's largest free trade area in the world, with the set of harmonized standards between two biggest trading partners. These standards would affect majority of the world trade, with significant impact on Asian markets, thus they would serve *de facto* as new world standards. These are general reasons why policymakers from both countries pay rigorous attention on taking each an every step towards conclusion of TTIP agreement. The scope of TTIP negotiations deals with tariff and non-tariff barriers, harmonization of trade policies and government procurement liberalization. The differences are difficult to modify, because they are deeply rooted in law, history, in political and economical structure of respective states. When we mention alternatives of TTIP agreement, we mean several ways in which this agreement might be concluded.



Table 6. Top 10 US States in Wine Consumption.

State	Liters per capita
1.District of Columbia	25,7
2.New Hampshire	19,6
3.Vermont	17,5
4.Massachussetts	16,9
5.New Jersey	14,9
6.Nevada	14,7
7.Connnecticut	14,4
8.California	14
9.Rhode Island	14
10.Delaware	13,5

Source: Kiersz, 2014

Comprehensive approach has further two alternatives, ambitious and less ambitious. The former comprises reduction of 100% of tariff barriers and 25% non-tariff barriers. The less ambitious scenario is said to eliminate 98% of tariff barriers and 10% reduction in trade costs caused by non-tariff barriers (Abboushi,2014). Major studies that have been already carried out brought the results of 50% increase in trade between EU and US if TTIP is concluded. Table 7. Depicts economic gains that would be reflected in EU's and US's GDP from all mentioned alternatives of TTIP.

However, EU's agriculture sector reacts to TTIP in a defensive and cautious way. The fear of EU farmers springs from the fact that the agriculture of the United States is more competitive so they would have to face many concessions to US agricultural trade. Moreover, European consumers are afraid of decreasing requirements for consumer safety, hormone treated meat and GMO products. Particularly in the case of the wine industry, the EU wine producers insist on exclusive usage of PDO (Protected Designation of Origin) and PGI (Protected Geographic Indication).

Table 7: Potential TTIP Scenarios Reflected in National GDP (mil. EUR)

Parameter	Tariff Only	Services Only	Procurement only	Less Ambitious Compr.	Ambitious Compr.
Change in EU GDP	23,753	5,298	6,367	68,274	119,212
Change in US GDP	9,447	7,356	1,875	49,543	94,904

Source: Own elaboration based on data from Abboushi 2014, pg.6

These features on EU products bring them more economic benefits, perceived as uniquely made in their own regions. For example Champagne or Cognac are produced in French regions named by the same names, respectively. A similar story is present regarding different labeling policies in these countries, implying more strict requirements for labeling in the EU. Nevertheless, there are disputes about the content of the bottled wine, especially regarding the permitted level of sulfites in the wine. Trade in alcohol is significantly regulated both in the United States and the European Union. US' wine import tariffs to the EU are around 20%, while the EU's import tariffs to the US are just about half of that. (Bettini, 2015)

The question arises, whether lifting of the trade tariffs would increase overall economic benefits in the European Union and the United States, or are there other factors, which would have more significant impact on additional wealth creation. An example of such benefits could be relaxing non-tariff measures such as domestic regulations in the European Union. These concepts are central to TTIP, however tariff barriers for wine trade are not negligible.

## **Political Economy and the Rationale for the TTIP**

With respect to the main issue of TTIP, political-economic views are now discussed, which might help to explain why there is so much initiative from US's side to sign a TTIP agreement with the European Union. In the same manner, we are going to examine the reasoning of EU's side and the essence of its refusals on TTIP proposals. The tariffs on wine are significantly different in the European Union and in the U.S.A, holding their values around zero in the United States, but much higher in the European Union. For the EU producers, this is ideal stage, when they can export wine to the United States as within a free market, but not so satisfactory for the United States. The European Union has suffered from surplus of wine in recent years, spending significant financial resources to create an incentive for EU wine producers to close their businesses. With the goal of 'draining' the wine from the EU wine lake it is reasonable, why had European Union imposed import tariff restrictions for the United States.

The conclusion of the TTIP would bring two world largest economies to a new stage of globalization, with worldwide impact. However, globalization has its constraints as well as benefits. Liberal political views admit negative effects of globalization, but they advocate that in the long run, the globalized society is better off than if it stayed prohibitive towards international investments and trade. In addition, many authors contrast multi-national organizations (MNCs) with national governments. More specifically, they emphasize the redistribution of power and control when the globalization takes place. Cohn (2012) describes, that accountability of national governments springs from democratic election. "The regime of nation states is built on the principle that the people in any national jurisdiction have a right to try to maximize their wellbeing, as they define it, within their jurisdiction. The MNC on the other hand, is bent on maximizing the wellbeing of its stakeholders from global operations, without accepting any

responsibility for the consequences of its actions in individual national jurisdictions” (Vernon 1998,28). However, the real control of the state’s economy is taken from the hands of government to international institutions like multi national corporations, international organizations, World Bank, International Monetary Fund etc. While national governments focus locally on the needs of specific country, MNC’s main interest is on increasing welfare of its stakeholders and fulfilling global requirements. Hence, the question is whether these international organizations take responsibility for their actions with respect to those, who they directly affect (Woods and Narlikar, 2001).

The initiative on TTIP came from the side of the United States (Francois et al. 2013), and it would not attract so much of an attention in wine industry, if the production standards, sanitary , and phytosanitary requirements, allowed level of sulfites in the wine would not have to be lifted and harmonized with lax US wine production standards. This issue, though, is omnipresent in all the spheres negotiated, where the quality of the food and beverages matters. As Oatley (2013) stated, the regulations are purposely being lifted because they directly influence the costs of production. Therefore it is less expensive to produce wine or any other product complying with lower production standards. The states with more stringent regulations and requirements have to face trade-off between higher quality of own production and lower costs with potential for international competitiveness (Oatley,2013).

Another misconception that may arise from the TTIP agreement, if concluded, is increasing inequality among population. All developed and developing countries have increased number of people living below the level of extreme poverty, more specifically below \$1 per day (World Bank, 2015). Lower classes and labor groups might happen to be in defense of the multinational blocs of international institutions ruling in their own countries. This is another

reason why EU labor groups fear to face the competition from the United States. A liberal side of political spectrum might argue, that “globalization . . . has improved the lot of hundreds of millions of poor people around the world.”(Nye, 2001 and Doyle, 2007). The historical materialists group believe, that globalization is beneficial for strong capitalistic states, but at the expense of weaker, less developed peripheral partners (Cohn,2012). On the contrary, the main stream economic scholars (Krugman et al., 2000) imply, that developing countries’ saviors from otherwise unending economic feebleness are MNC’s which carry out foreign direct investments (FDIs) in developing countries. The unemployment is thus decreasing and local citizens are offered a chance to learn and to specialize in certain agricultural, industrial or other sectors.

### **CHAPTER 3. METHODS, PROCEDURES AND DATA**

The goal of this Thesis is to determine which variables are the most influential in bilateral wine trade between the European Union and the United States. We will obtain and process secondary statistical data, which will be processed through Excel software. The statistical software STATA will be utilized to conduct the regression analysis. The interpretation of the results will be based on the acquired knowledge from previous economic analyses and supported by the literature used as a background for this Thesis. It was concluded that the most relevant method is to create a panel data and obtain output for Panel Data Linear Regression with the using STATA software.

After creation of time series data for time period 1989-2015 (26 years of observation), we were able to detect the evolution of the United States' mutual engagement in trade with main European wine producing countries, particularly France, Italy, Spain, Portugal, Greece and Germany. In addition, we included the coordinated data of the same kind for countries with certain specificities. Slovakia, which is the only landlocked country, permits the analysis to indicate differences in the trade intensity due to being a landlocked country. Australia was added to our model, since it is currently in the FTA with the United States as a single country in the model. China was incorporated into our observation, since the wine market there constitutes dynamic growth (Antošová, 2015). Moreover, China has an intensive commercial exchange with the United States.

The dependent variable is Trade Intensity Index, commonly used as one of the trade indicators by statistics of the World Bank. The explanatory variables used for this particular model are GDP of the European Union and GDP of the United States, distance measure, EUR/USD real exchange rate, relative endowment of wine, US's import tariffs, dummy variables

EU member , FTA with United States, and a dummy variable for landlocked country. More specific explanations of the variables are below the linear regression formula used in our research:

$$\ln(\text{Trade Intensity Index}) = \beta_1 + \beta_2 \ln(\text{US GDP}) + \beta_3 \ln(\text{GDP in Country I}) + \beta_4 \ln(\text{Distance}) + \beta_5 \ln\left(\frac{\text{EUR}}{\text{USD}} \text{ real exchange rate}\right) + \beta_6 \ln(\text{US import tariff}) + \beta_7 \text{EU member} + \beta_8 \text{Landlocked} + \beta_9 \text{FTA with USA} + e$$

Trade Intensity Index was used as dependent variable, since the principal question of this Thesis is how the EU/US wine trade is going to be affected by potential conclusion of the TTIP. Obtaining statistical data for the purpose of measuring trade intensity, we used software WITS (World Integrated Trade Solutions) created by World Bank, Comtrade database. The reporter country was European Union(27) and the data obtained were for the HS 2012 Nomenclature, 4 digit products starting with 22- Beverages, Spirits and Vinegar.

“The trade intensity index uses similar logic to that of revealed comparative advantage, but for markets rather than products. It indicates whether a reporter exports more, as a percentage, to a partner than the world does on average. Values range from 0 to  $+\infty$ . A value greater than 100 indicates a relationship more intense than the world average for the partner”(World Bank, 2013).

The Formula of Trade Intensity Index is as follows:

If Trade Intensity Index coefficient is more than 100, the exporter trades more of a product to country i (as a percentage) than the rest of the world does. Where  $x_{ijk}$  is the amount of exports of product k from country i to destination j,  $X_{ik}$  are total exports of product k from country i,  $x_{wjk}$  stands for the amount of exports of product k from the world to destination j and

$X_{wk}$  denotes total world exports of product k. As an example in Table 8 we used non-real data on exports to bring an idea of how we could obtain the Trade Intensity coefficient.

Table 8. Trade Intensity Index Example.

Exporter/Reporter:	Importer:	Total wine exported from the EU, in year n:	EU wine exp. to the USA in year n :	Total world exports:	World exports to US:
EU	USA	700,000 tons	350,000 tons	17, 000, 000 tons	9,000,000 tons

By replacing the figures into general formula of the Trade Intensity Index, we obtain a measure.

$$\frac{350,000/700,000}{9,000,000/17,000,000} \times 100 = 94.4$$

The value of Trade Intensity Index 94.4 predicts very intensive trade between pair of countries, but yet not more than the importer's trade with the rest of the world is. If this was the case, the trade intensity index would have a value of more than 100. If the EU's total exports increase (for example from 700,000 to 100,000), the trade intensity with the US will rise, due to larger value in the numerator after dividing 350,000 by 100 000, everything else held constant. The same applies for the  $X_{wk}$  variable. If total world exports of wine will raise from 17 million to 20 million, the resulting coefficient in the denominator of the formula will be smaller, and thus the Trade Intensity Index will rise. If these variables increased by the same proportion, Trade Intensity Index would not change. Furthermore, if the European Union began to export more wine to the United States , *ceteris paribus*, the numerator in upper part of the equation would be larger, thus the Trade Intensity Index would be higher. In the same sense, if the world exports to the United States raised, say from 9 million tons to 12 million tons, the denominator in the lower part of the equation would rise, but the coefficient of the whole equation would fall, and so the



relative Trade Intensity Index between EU and US. The Trade intensity between pair of countries rises as they engage in mutual exchange of wine. If importer country engages more in the wine exchange with rest of the world, logically the trade intensity between observed pair of countries falls.

United States' GDP and specific country's GDP both refer to the Gross Domestic Products for the period 1989-2015 measured by World Bank (2015). The variable Country's GDP represents observed values of Gross Domestic Products for each country in our panel data.

United States' Import Tariff variable denotes the import tariffs on observed EU wine producing countries, Australian and Chinese products imported to the United state in the same time period 1989-2015.

The Exchange rate variable was somewhat difficult to harmonize, because our panel data were applied to the period 1989-2015. We hit the problem with the inconsistency with using EUR/USD exchange rate. Euro currency was released into the circulation in 1999 as bank money (European Central Bank, 2011). Prior to the adoption of the Euro, the current EU member countries in our model used their own currencies. We calculated the real exchange rate in each year by following formula:

$$\epsilon_{real} = \epsilon_{nom} * \frac{CPI_d}{CPI_{US}}$$

Where  $\epsilon_{real}$  is real exchange rate of 1 currency to Dollar,  $\epsilon_{nom}$  is nominal exchange rate of given currency to Dollar,  $CPI_d$  denotes a consumer price index for domestic country in given year and  $CPI_{US}$  represents consumer price index of the US in given year.

For the period of 1989 to 1998, we adjusted each country's currency per Euro exchange rate. Subsequently, we corrected this number for the inflation, hence created a real exchange rate. Later we divided the term by pegged currency in EURO terms. By this we converted specific

currency per Euro and created artificial EUR/USD exchange rate for years 1989-1998 (Kennedy et al, 2006). For instance, France's currency was the Franc during the years 1989-1998. We have converted FRA/USD currency into EUR/USD by this formula:

$$\frac{(Franc/USD)_{nominal} \times CPI_{FR}/CPI_{US}}{(Franc/EUR)_{pegged}} = \frac{(Franc/USD)_{real}}{(Franc/EUR)_{pegged}} = \frac{EUR}{USD}$$

We used this manner for each country in our model that went through the transition into new currency (all except for Australia and China), to keep consistency with Euro/Dollar exchange rate prior 1999. We chose the time period beginning with the year 1989 for the reason of the collapse of Soviet Union in that year. This fact is linked to newly established political systems of several European states, new country borders, transitions to open economies and overall reassessment of new, more efficient trading partners in Europe.

The Endowment measure suggested by Martinez & Nowak (2003) is measuring probable Linder effect, which we applied to wine production per capita (endowment per capita), instead of people's income. The country with smaller population will have relatively larger production per capita. If the exporter country - European Union in this case - has larger production per capita, the coefficient of this measure is positive, which suggests inter-industry trade. However, if the coefficient appears to be negative in certain year, this suggests intra-industry trade, because exporter has smaller production per capita than the importer country. The formula utilized by Ramirez (2016) is as follows:

$$ENDOW_{EuUs} = \left( \ln \frac{Production\ EU}{Population\ EU} \right) - \left( \ln \frac{Production\ US}{Population\ US} \right)$$

The Distance measure between each country in the model and the United States was calculated as a physical remoteness in miles between main ports of the EU wine producing countries, and ports of the US' states with the highest per capita wine consumption. The largest ports from France, Italy, Spain, Portugal, Germany and Greece were considered as point A, while for Slovakia (landlocked) we used Netherland's main port as point A. In addition, we picked the main ports in China and Australia and also considered them as starting points. In the second step, we obtained the data on current US wine consumption by state. We picked the first 10 states and their main ports as target points B in our distance measure. Thirdly, we calculated nautical distance between respective US states and EU countries, Australia and China and recalculated them to the miles units. This single measure was then used in our panel data and gravity model. Table 9. provides the example of a few but not all countries' distance measures.

Table 9: Distances Between EU-US Wine Export/Import Points.

From	To	Nautical miles	Km	Mileage
Rotterdam (Netherlands)	South Louisiana	4989	9239,628	5741,239
Marseilles (France)	New York/New Jersey	3903	7228,356	4491,492
Genoa (Italy)	Hampton Roads, VA	4202	7782,104	4835,575
Barcelona (Spain)	Los Angeles	7791	14428,932	8965,723
Average		5221,25	9669,755	6008,50725

Source: sea-distances.org, 2016

Dummy variables as EU member, Landlocked and FTA with the United States define whether the particular country is or is not a member of the European Union, whether it is landlocked or it has direct access to the sea and whether a given country is in the Free Trade Agreement with U.S.A.

We were able to obtain the raw data from the online databases of International Monetary Fund, World Bank, European Central Bank ,United Nations Comtrade database, WITS - World

Integrated Trade Solutions, Faostat and Eurostat. The sources for the information with non-numerical values, as annual outlooks, overviews or important facts were found at National Association of American Wineries, European Commission of Wines and Vines, Business insider, Beverage Information Group and academic literature, academic journals focused on trade with wine.

## CHAPTER 4. EXPECTED RESULTS

With the theoretical background from previous analyses and economic theories on international trade, the expectations on the data can be stated prior to conducting the actual pooled linear regression analysis. Table 10. provides the variables used in the model together with their expected signs and sources for respective data sets.

Table 10. Variables and Expected Signs.

Variable Name	Expected sign	Source
Trade Intensity Index	+ positive	World Bank – WITS
Log <i>USA_GDP</i>	+/- positive or negative	World Bank, GDP
Log <i>Country's GDP</i>	+ positive	World Bank, GDP
Log <i>Distance</i>	- negative	Seadistances.org
Log <i>Real Exch. Rate</i>	+/- positive or negative	International Monetary Fund
Log <i>US's Import Tariff</i>	- negative	TRAINS database
Log <i>Endowment</i>	+ positive	Own calculation based on U.S. Census Bureau: International data
EU Member	+/- positive/negative	CIA Fact book
Landlocked	- negative	CIA Fact book
FTA with USA	+ positive	Office of the US Trade Representative

The constant: Trade intensity index  $\left( \frac{x_{ijk}/X_{ik}}{\bar{x}_{wjk}/X_{wk}} \right) * 100$

The Trade Intensity Index measures the amount of wine exports from EU to the United States and relates this measure to the amount of world wine exports to the United States. We expect this sign to be positive without the impact of any of the variables, since the European Union and the United States are engaged in long-term commercial exchange of wine.

The first subject of our interpretations is the impact of U.S.'s GDP on trade intensity with the European Union. As the economic theory implies, the state is better off with trade than otherwise. Therefore we expect to see a positive relationship between trade intensity and United States' GDP. However, review the formula of trade intensity index.

The index considers the EU wine exports to the United States and compares it with the rest of the world. Since these represent imports for the USA, and they have been increasing over years, the coefficient of US GDP can have also negative value, meaning a negative relationship with Trade intensity index. We did not measure the US's wine exports to the European Union, because our interest is to specify what would be the impact of TTIP agreement for European wine producers and wine exporters.

The impact of the EU country's GDP (exporter), on trade intensity with the United States (variables log State GDP on log TIT): A positive relationship occurred as expected, because increasing production and export of the wine leads to a larger amount of trade and the exporting country is definitely better off. There is a question of the causal relationship between the specific trade of wine and GDP growth of the wine exporting country. Either the EU wine countries started to produce more wine, which contributed to their GDP growth and consequently the wine trade with the United States developed or conversely, the trade with the United States was initiated, followed by the need to produce more wine to be traded internationally, what was reflected on their GDP growth. This issue can serve as a decent starting point for future research.

Even though we are implying an endogeneity here, it is more reasonable to say, that the GDP in any country initially grows even without international trade. In the effort to grow domestic GDP higher, the country later seeks foreign export markets and foreign suppliers, thus it engages in the international trade.

The effect of distance on trade intensity with US (variables log Dist on log TIT):

As economic theory on gravity model implies, large distance has negative impact on the trade between two countries and we expect the same in our output. (Kennedy et. al, 2006). Wang et. al, (2011) explain, that it is reasonable to measure the distance in the gravity model cost of shipping goods, than in the units of physical remoteness. By this we would see, that the cost of shipping was decreasing over years and the modern communication and transportation make world smaller. However, in our model we kept the traditional distance measure in miles, which does not change over the years, but varies across countries.

Influence of the real exchange rate on trade intensity with the United States (variables log RealExRate on logTIT): In our model we used the Euro/Dollar real exchange rate. When this ratio increases it means that the Euro depreciates (or that 1\$ is worth more Euro). Depreciation of the Euro leads to EU exports expansion and thus the trade intensity is expected to grow. That is precisely what our Trade Intensity Index measures.

Impact of US import tariff on trade intensity with US (the variables logUSImpTariff on logTIT) : Import tariffs represent impediments to trade, thus we expect negative relationship with Trade Intensity Index.

Impact of relative endowment of the countries on trade intensity with US (variables logENDOW on logTIT): The formula we used to measure relative endowment of wine in particular exporting country and the United States is as follows.

$$ENDOW_{EuUs} = \left( \ln \frac{Production\ EU}{Population\ EU} \right) - \left( \ln \frac{Production\ US}{Population\ US} \right)$$

This measure, suggested by Martinez & Nowak (2003) is measuring for a possible Linder effect, which we applied to wine production per capita (endowment per capita), instead of people's income. The country with the smaller population will have relatively larger production per capita. If the exporter country has larger production per capita, the coefficient of this measure is positive, which suggests inter-industry trade. However, if the coefficient appears to be negative in a certain year, this suggests intra-industry trade, because the exporter has smaller production per capita than the importer country.

The expected sign of this coefficient is positive. If per capita endowment of wine in the EU increases (or decreases in the US), the trade intensity increases as well.

The effect of being a member of European Union on trade intensity with the United States (dummy variable EUMEMBER on logTIT): Being a member of an economic union such as the EU is indisputably a valuable contribution to each member country's volume of trade. The countries within their free trade areas intensify the trade among themselves, but the impact on the non-member countries might be trade diverting. The expected sign can have positive or negative value, depending on the magnitude of intra-EU trade compared with EU-US' trade intensity.

The bearing of being landlocked country (dummy variable Landlocked on logTIT) : The countries that do not have direct access to the sea are expected to have lower trade intensity with the business partner overseas. The transportation costs are higher for a landlocked country, thus the relationship is expected to be negative.

Impact of being in the FTA with the United States on trade intensity with (dummy variable FTAWITHUSA on logTIT): Being in the same FTA increases economic benefits of the member countries (Kennedy, 2006). In our model, a dummy variable marks a difference between



countries that are currently in FTA with the United States and those that are not. From all nine countries observed, only Australia is in such an agreement with the United States, the remaining eight countries are not in the FTA with the United States, yet they are engaged in the FTA with other states. Consequently, we expect this sign to be significant enough.

## CHAPTER 5. RESULTS

In Table 11, we summarize expected signs of the variables with actual signs from our pooled OLS regression output. It is noticeable, that most of our expectations with respect to positive or negative signs of the parameters were fulfilled. Consequently, we can conclude that the hypothesized economic theory on the Gravity Model in International Agricultural Trade is correct. However, in the following tables are data specifying the significance of individual variables, which conveyed results consistent with a priori expectations.

Table 11. Expected and Actual signs of Parameters

Variable Name	Expected sign	Actual sign
Trade Intensity Index	+ positive	+ positive
Log <i>USA_GDP</i>	+/-positive or negative	- negative
Log <i>Country's GDP</i>	+ positive	+ positive
Log <i>Distance</i>	- negative	-negative
Log <i>Real Exch. Rate</i>	+/- positive or negative	+ positive
Log <i>US's Import Tariff</i>	- negative	- negative
Log <i>Endowment</i>	+ positive	+ positive
EU Member	+/- positive or negative	- negative
Landlocked	- negative	- negative
FTA with USA	+ positive	+ positive

The overall adjusted R-squared from pooled linear regression output is 0.7677 which means that 76.77% of the variance of the dependent variable is explained by this model. This model was also corrected for heteroskedasticity and autocorrelation using AR1 Autoregressive model to correct for the First-Order Serial Correlation. The model has normal distribution and coefficients from the regression output are as follows:

$$\begin{aligned} \ln(\text{Trade Intensity Index}) &= 8.3057 - 0.3311 \ln(\text{US GDP}) + 0.3970 \ln(\text{GDP in Country } i) \\ &- 0.4517 \ln(\text{Distance}) + 0.0338 \ln\left(\frac{\text{EUR}}{\text{USD}} \text{ real exchange rate}\right) \\ &- 0.0428 \ln(\text{US import tariff}) + 0.1414 \ln(\text{Endowment}) \\ &- 0.9756 \text{EU member} - 2.941 \text{Landlocked} + 0.0434 \text{FTA\_USA} + e \end{aligned}$$

Table 12. contains additional information on standard errors of the coefficients and their significance levels. Only one star means that the parameter is significant at  $\alpha = 0.1$  (90% confidence level) two stars represent significance at  $\alpha = 0.05$  (95% level of confidence) and three stars denote the highest significance at  $\alpha = 0.01$  (9.9% confidence level).

Table 12. Standard Errors and Significance Levels of Coefficients.

In Trade Intens.Index	Coef.	Std. Err.	P>z
constant	8,305691	3.058155	0.007***
<sup>1</sup> USGDP	-0.3311132	0.2545493	0.193
Country I GDP	0.3970008	0.1492718	0.008***
Distance	-0.4516607	0.2022589	0.026**
Real Exchange Rate	0.0338152	0.0103147	0.001***
US import tariff	-0.0427571	0.0225868	0.058
Endowment	0.1413749	0.0490633	0.004***
EU member (dummy)	-0.9756203	0.1961255	0.000***
Landlocked (dummy)	-2.941067	0.412164	0.000***
FTA_USA (dummy)	0.0434125	0.2352442	

<sup>1</sup> The coefficients US GDP, Country I GDP, Distance, Real Exchange Rate, US import tariff and Endowment were transformed by natural logarithm.

## Interpretations and Discussion

The real value of the trade intensity coefficient is 8.3. This would be the trade intensity index if none of the present variables were considered in the model. Obviously, this parameter is highly significant (significance 0.007) which is a good fit to our model.

In our output, the coefficient of US GDP has the value -0.3311, but it is not a statistically significant parameter. However, there exists a broad price range for the wines in the United States. Wines with different level of quality are thus affordable for consumers with lower or medium incomes. Then if we consider how much would the US GDP grow with the conclusion of TTIP agreement, we can hypothesize that their spending on wine would level-off at certain point of time. Since their spending would be focused on more luxury goods, wine consumption in the United States might not execute a constant growth anymore. There is considerable space for further research in the case that both trading partners sign the TTIP.

The coefficient of the specific country's GDP is 0.3970. As expected, it is a highly significant parameter (significant at 1%). This means that if the EU wine producing country increases its GDP by 1%, the trade intensity with the United States will grow by 0.40 % holding everything else constant.

GDP is the total commercial value of goods and services produced at specific location during a specific period of time (Mankiw, 2004 ). The GDP of a wine exporting country has a considerably reflective relationship with a country's international trade with wine. In other words, the growth of the GDP is triggered by the increased domestic production, if the country is engaged in the international trade. However, it does not mean that exports are good and imports are bad. Because from the opposite point of view, exports include costs of production, while

imports are what we get in exchange for export revenues (McTeer, 2013). The GDP measure is influenced by demand and supply factors of the given country. A national GDP reflects the domestic consumption pattern, which is in turn controlled by the height of interest rates, inflation and wages. These demand factors influence the disposable income of a household, in other words, how much of the real money value the family can devote for their consumption, after paying taxes and debts. At the times of economic prosperity, the consumption in the country increases, production expands and so does the GDP. The inflation, high interest rates, and stringent fiscal policies take money away from the public, thus in the opposite scenario the consumption contracts and GDP stagnates at its current level. Supply factors that affect GDP of the country are level of the infrastructure or the ease of the communication, human capital or the technology level. The infrastructure and communication are considered in the Gravity Model as a measure of economic distance.

Foreign demand and supply certainly have indirect effects on the GDP of the EU wine producing leaders. Regarding foreign demand for EU imports, the economic theory implies that increases in income of the importing country (GDP of the United States) are positively related to increases in their imports from abroad. However, our model did not inspect significant relationship between growth of income in the United States and the amount of the wine imports from the European Union. In fact, if the EU wine producing countries export wine to the United States, cheaper imports from Chile or Australia (see Table 3.) create a profit range for the respective country and the European Union as well, which in turn increases incomes.

It is important to mention the theory of international trade, which uses offer curves to depict how the individual terms of trade change with the changes in willingness to trade. If we continue with our proposed theory, that GDP increase in the EU wine producing countries will

increase trade intensity in wine industry with the United States. The relevant question to be asked is how long is this going to be profitable for the European Union. The answer is ambivalent, because it depends on the relative prices of the wine commodity in the European Union and the United States respectively. In the case of the free market, the European Union will be constantly increasing its willingness to trade wine with the United States (anticipating incomes from these exports). Its terms of trade will fall and the EU wine exports will have lower value in the long run. If the EU wine industry reaches this break-even point, it is just a question of time when the wine producers will be forced to leave their businesses, as the prices they can charge fall below average variable costs in the long run. From this point of view, import tariffs on wine in the European Union are literally protective to avoid the possible scenario in case of TTIP was concluded.

The coefficient of the Distance variable was consistent with our expectations. Its value is -0.4516 and it is negative as anticipated. In addition, its significance is 0.026, what shows that this variable is significant with a 95% level of confidence in the model. If the United States and the European Union were more distant by 1%, than the trade intensity would decrease by 0.45%. Countries that are in closer proximity to the United States have competitive advantage, which is the expected detail that should not be disregarded.

If the TTIP was signed, it would not change the physical distance of the countries, however the cost of shipping could decrease within the potential EU-USA free trade area. As stated earlier, physical distance measure can be improved to more accurate one. Since economic discipline is different from physics (Bergeik, Brakman, 2010) initial distance measure should involve transportation costs and time, which are possible to decline with technological advance in the future. Mohlmann et al. (1999) suggested including institutional and cultural component

into distance measure. Bergejk and Brakman (2010) further explained, that the border effect is less likely to be observed in aggregate trade flows, but significant in particular product groups. This fact is directly related to bilateral trade with wine between the United States and the European Union.

The international political relationships play a vital role in the international trade as well. More specifically, good political relationships between trading partners permit for international trade to expand. The evidence provided by Polins (1989) and Van Bergejik (1992) states, that a positive diplomatic atmosphere between trading countries is desirable in order to develop national security by engagement in mutual trade exchange. Since TTIP is projected to mature into even more integrated global entity, political economy plays one of the major roles. As Sir Winston Churchill said during his speech in Zurich, Switzerland (1946): “We must build a kind of United States of Europe”. With his positive attitudes to globalization, he officially became an honorary civilian of the United States in 1963. Friendly diplomatic relations were relating the United Kingdom and the United States. Considering national security of the European Union, EU member states (except Malta, Austria, Ireland, Cyprus and Finland), are members of the North Atlantic Treaty Organization (NATO), which protects democracy by military and political means. The United States entered NATO the first, in 1949. The NATO non -member countries have military protection of the European Union as well. Accounting for the fact that most of EU member states are already members of NATO together with the United States, reveals that conclusion of the TTIP agreement is not necessary in order to sustain national security of the European Union.

The coefficient of the real exchange rate from our output has a positive value of 0.0338 and confirms expectations from the economic theory. It is also a very significant parameter at

99% confidence level. (significant at 1%). This fact means that exchange rate volatility is an influential component for the growth or decline of exports. When this ratio increases by 1%, it means that the Euro depreciates (or that \$1 buys more of the Euro). Depreciation of the Euro leads to European Union's exports expansion and thus the trade intensity increases. Depreciated currency has also impact on the employment rate in the European Union. Since production is triggered by higher foreign demand, let's say for wine, the employment in the wine sector of the European Union will increase.

The exchange rate is constantly being influenced by factors like inflation differences, interest rates inequalities, and balance of trade of trading partners, terms of trade, government debt or political stability. The differentials in the inflation in the European Union and the United States indirectly affect the Euro/Dollar exchange rate, affecting a purchasing power of each currency. Since the inflation is defined as the permanent increase of the prices of goods and services, increasing the price of wine exports due to the inflation inhibits U.S. demand for wine imports from the European Union.

Differences in the interest rate also affect the EUR/USD exchange rates. If the interest rates are high in the European Union, U.S. and other foreign investors are attracted by higher returns on their investments in the EU. However, high interest rates apply for loans as well, which in turn slow down domestic consumption. Moreover, the inflation partially mitigates the effect of the exchange rate, so this case has to be evaluated using real data at a specific point of time. Further integration through TTIP may lead to even more simultaneous movement of the interest rates, since Federal Reserves would be in tighter collaboration with European Central Bank.



Another influential parameter affecting the exchange rate is balance of trade of each trading country. More specifically, the United States' trade deficit was at \$40.73 billion in August 2016, while the European Union's trade surplus was €18.4 billion at the same time (Trading Economics, 2016). It seems like the European Union is doing significantly better than the United States, but the interpretation of this data is vague. The United States has established Multi-National Enterprises in the European Union, with sales of \$2,779.9 billion and employed 4.19 million of people in the European Union in 2013 (Bureau of Economic Analysis, 2016). The majority of manufactured products are shipped to the United States. The European Union established the affiliates of Multi-National Enterprises in the United States in 2013, gaining \$2,323.4 billion on sales, providing job opportunities to 4.1189 million of people in 2014 (Bureau of Economic Analysis, 2016). As we can observe, figures are similar indicating balanced trade relationships between the European Union and the United States. These economies work hand in hand, moving towards free trade without the conclusion of a FTA.

The exchange rate is also impacted by the public debt of respective trading partners. Countries used to borrow money from external sources to finance their public projects and government expenditures. However, the country with large government debt loses its attractiveness in the eyes of foreign investors. If the country does not have enough money to finance its debts, it often starts to print new money, referred to as quantitative easing which directly causes inflation and devaluation of the currency. Prices rise but the value of the monetary unit decreases. A similar situation exists in the European Union due to large public debts of the few of its member states, with Greece on the top of the list. In such cases, the investors seek alternative investments to protect the value of their money. Commodities like gold, diamonds or the investment wine are sustainable protection of the investment's value in the

long run. The figures of public debt are the following. United States' public debt represents 104.17% of the GDP in 2015 while the EU public debt was 90.7% of EU GDP in the same year (Tradingeconomics.com,2016). According to the data from World Bank (2015) U.S. GDP was \$16.229 trillion and EU GDP was \$19.947 trillion. We can further infer that when the United States and the European Union are in relative economic prosperity, these partners' cooperation empowers further development, which would have even more pronounced effect in the case of TTIP conclusion. On the contrary, in the situation of the economic crisis, both the United States and the European Union would pull each other deeper down to the basement of economic mediocrity, what could be even more prominent within the TTIP. Further consequences could impose economic threats from Asian economies like China or Russia.

Another measure that has an effect on the exchange rate is the terms of trade of individual trading partners. This ratio of the Price of exports to the Price of imports increases in favor of the European Union exporting wine, if there is a higher price of wine exports, resulting either from increased US demand for wine or for other reasons. If the price of US imports increased by a higher rate, then EU's terms of trade would downgrade. More on the terms of trade is represented by offer curves in the Literature review. Since EU and US economies move simultaneously and would do so even more if the TTIP was settled, we do not expect significant changes in the EU's TOT with respect to international trade with wine.

The last but arguably most influential element for the exchange rate is political stability. We have already discussed earlier that favorable diplomatic relations permit for international trade and investments. However, in the case of the TTIP, political instabilities would impact the trading partners as well. For instance the election of a controversial president may have a

negative impact on the exchange rate and economy of whole trading bloc, as it had Brexit on the European Union in the summer of 2016.

The output coefficient of United States' import tariffs has a negative value of -0.0427, which is consistent with our expectations. However, this variable was not a significant predictor. It implies that if tariffs were decreased by 1%, the trade intensity would grow by 0.04 % with respect to spirits, beverages and vinegars.

The Endowment coefficient has a positive value of 0.1413, as anticipated. In addition, it is a highly significant parameter (sign. 0.004). The EU's trade intensity in the wine sector with its US partner will grow, if the endowment of wine in the European Union grows proportionately more, than the population in the European Union. At the same time, this EU production/ EU population ratio is expected to grow proportionately more than that of the United States. The endowment of the production factor is associated with the country's comparative advantage. According to the basic economic theory of comparative advantage explained by David Ricardo (1819), the country specializes in the production of those goods, which production is intensive in the factor that has the lowest cost for the country, more precisely the smallest opportunity cost. Applying this knowledge to the agriculture and wine production, the wine is relatively labor-intensive commodity. However, there is the extent to which the wine production needs significant amount of financial capital, as well as a human capital and the technology. However, the economic practice is more complicated. The Leontief paradox (Leontief, 1953) is named after its inventor who discovered that the United States imports of capital-intensive goods are more prevalent than labor-intensive imports, in spite of the United States being a capital-intensive country. Within the TTIP, there is a high possibility, that the same would be applicable also for the European Union. The invisible hand of the market would control the EU-US free

market, contradicting the traditional Heckscher-Ohlin theorem (Heckscher et al.1991). Our further considerations include the Factor Price Equalization theorem explained by Koo and Kennedy (2005). This theory states, that if all applicable assumptions are satisfied, the international trade will permit the prices of two identical production factors to equalize in the long run. The comparative advantage of the EU's wine producing countries could be improved through the TTIP, thanks to smoother flows of capital and investments, as well as more globalized infrastructure. On the one hand, the short run impact on EU wine producers would force many to close their business, in the long run they would have to battle in a more competitive free market. Even though wine producers would not be protected, this would have positive effects since the EU wine industry would have new incentives for the development of innovations. Technology and knowledge spillover within and among the wine producing clusters would give way to financial gains for the most competitive wine producers. Davidson's theory of innovation and factor endowment (1989) asserts, that it is very likely for developed economies that the innovation will make incentive for exporting country to export its most expensive product, rather than importing it.

The coefficient from the regression output on variable EU member is negative -0.9756 and it is highly significant parameter (significant at 1% 0.000). If the country is an EU member state, then the trade intensity with the United States decreases by 0.97%. We will understand this relationship better if we look at the country's membership in the European Union as trade diverting from the United States. Since the free trade area within the European Union is advantageous for its member countries, it also represents a drawback for the United States, since the United States is apparently not a member of the European economic bloc. Therefore, the TTIP initiative of the United States aims to embrace the European Union free trade area and to

create the world's largest free trade zone. However, the European Union has an FTA with Central America and South Korea. Through the TTIP, the trade could be diverted from these trading partners. Besides testing for the impact on the EU member states on the trade intensity, we included Australia and China in our model. These states are not members of the European Union, but they intensively trade with the United States. The program was able to reflect the difference of trade intensity among the EU member countries and non-members countries. For this reason, this coefficient has a trade diverting effect considering the trade with the United States. The potential conclusion of the TTIP agreement would have some positive financial effects for the signatories of this partnership, while it would have trade-diverting impact on other countries trading with the European Union or the United States. The primal problem regarding preferential trade agreements (PTAs) is the Rules of origin (Mildner and Schmucker, 2013). Rules of origin describe which goods can enjoy preferential handling. In order for a good to be entitled to preferential treatment, at least part of it must be produced within a particular PTA. This causes confusion, which would not exist if all the countries would only be trading within the rules of WTO, without establishing their exclusive PTAs. This confusion in the Rules of Origin was well described as the 'Spaghetti bowl effect' by Bhagwati and Krueger (1995). This effect simply depicts entangled situation with different tariff treatments between multiple PTAs, including –crisscrossing regulations. The costs incurred are mostly borne by small and medium sized enterprises (SMEs), which represent a backbone of the EU wine industry. According to the research of Felbermayr and Lach from the IFO Institute (2013), within the TTIP the trade-diverting losses will have to be borne by all countries that are in close proximity to the European Union or the United States, the countries engaged in large commercial exchange with either of the TTIP signatories, and countries that are in an FTA with one or both of the future TTIP

partners. Particularly, Mexico and Canada will be hurt from trade diversion with respect to NAFTA, and Australia, because of its FTA partnership with the United States. From this perspective, TTIP would impose even more discrimination in relation to other trading partners. The trade diversion effects would be mitigated though, if the TTIP would comply with WTO rules. As for now, TTIP seems designed to overcome the unfinished negotiations from WTO Doha Round, but it is hitting the same sensitive questions regarding agricultural protection.

The output coefficient of the Landlocked dummy variable is negative -2.9410 and it is a highly significant factor (sign. 0.0000). From the list of countries in our model, only Slovakia is a landlocked country. Our interpretation for this result is not having a direct access to the sea or to the ocean significantly impedes the country's availability and willingness to trade internationally. More specifically, the trade intensity with the United States is weakened by 2.94 % in the case of landlocked country. In most of the cases, majority of landlocked countries are also developing ones. This is not the case of Slovakia, since its membership in the European Union, with Euro currency significantly facilitating its access to international trade with western countries. The vast majority of Slovak wine producers, if they export their wine, do so within intra-EU borders. The state's interdependence with its neighbor countries (four of total five are EU members) is necessary for Slovak economic growth since Slovak wine production is expanding as a result of warmer climatic conditions. For the future of Slovakia with respect to TTIP, it is not clear whether potential investment opportunities will be focused on further improvement of the infrastructure, education or production of energy. In any case, technological advances decrease the economic distance of landlocked country. A promising project, which could bring significant cuts in transportation costs of people and freight, is the so called Hyperloop. This magnificent investment could be built and ready to be used in 2020, connecting

three capitals in central Europe: Bratislava (Slovakia), Vienna (Austria) and Budapest (Hungary). It is the first tube carriage train that will be able to reach its highest speed of 1200 km/h, which is estimated speed of the sound. According to Elon Musk, the American businessman of Tesla, this device can transport people from Bratislava to Vienna in 8 minutes, while from Bratislava to Budapest it would take 10 minutes. Since this is an open-source scheme, the researchers and constructors are free to contribute to further development of the Hyperloop technology. Similar projects are currently under development in France and in Russia. For Slovakia, this project would be a tremendous support of regional development and Slovak international trade.

The dummy variable that represents a country which currently is in FTA with the United States has a positive value of 0.0434 but it is not statistically significant parameter (0.854). The only country in our model that is currently engaged in FTA with the United States is Australia. For the European Union this indicates, that concluding a Free trade area with the United States would not bring major financial benefits, nor increase trade intensity with the partner country. However, the conditions of conclusion of the TTIP would certainly require decreasing import tariffs by European Union. This would lead to larger amounts of cheaper wine imports from the United States with vast positive and negative consequences, which can be investigated in the additional research.

## CHAPTER 6. SUMMARY AND CONCLUSION

The objective of this thesis is to discover whether the TTIP agreement, as a form of next step towards globalization, would bring economic benefits to wine producers in the European Union, even at the expense of non-monetary consumer losses that may accompany the TTIP. From the preceding literature, we learned that the United States and the European Union are the largest trading partners, as well as competitors, in the world. If we sum up their economies, they are worth more than half of the world GDP (World Bank, 2015). If the TTIP was concluded, it would lead to liberalization and better coordination of trade and investments, resulting in a free trade between the European Union and the United States. The existence of such a large free trade economic block would be the largest of its kind in the world and it would represent a significant rival to dynamically growing Asian markets. However, there are pertaining conflicts in each of 30 chapters comprising TTIP, given the variances in legal systems of both nations, dissimilarities in political systems and sensitive agricultural questions still need to be renegotiated.

We have examined the relevant literature focused on a potential TTIP agreement and found many opposing opinions. Similarly, we brought together the knowledge from the economic theory on international trade and enriched our basis by clashing political economists' standpoints with respect to extensive globalization and the MNC's. We expected, that being aware of political assumptions could explain the reasons for policymakers' decisions, what was effectively achieved.

The main part of the Thesis involved creation of a realistic Gravity model in international agricultural trade in wine between the European Union and the United States. Except for the basic variables used in general gravity models (GDPs of trading partners and distance), we added other variables that represented exchange rate volatility, impact of import tariffs on the trade



intensity as well as the possible effect of the country, which is currently in the free trade area with the United States. The potential impact of a country which is a member of the European Union and also relative endowment of wine in respective countries were potential predictors of the trade intensity between the European Union and the United States. We made a simplifying assumption that European Union is the wine exporter and United States is the wine importer. Besides that, we observed the behavior of the effect on trade intensity if the country is landlocked, even if the TTIP agreement would not directly change this fact. The output obtained from regression analysis was thoroughly interpreted in its devoted chapter. We compared interpretations with expected results, where the majority of our coefficients fulfilled our expectations.

According to the coefficients we obtained from our pooled OLS regression we concluded that 76.77 % of our data was explained by the proposed model, thus the model we used was quite useful in explaining the variation in trade intensity. The dependent variable was the Trade Intensity Index measuring wine exports from EU to the USA, which was significant at 1%. The explanatory variable reflecting GDP in the USA was not a significant parameter, while the GDP of a specific country was a highly significant parameter. Based on the coefficient value and its high significance level we can conclude that if EU wine producing country increased its GDP by 1%, then the trade intensity with the US would grow by 0.39% holding everything else constant. The distance variable confirms what was expected by the theory. Its value is negative and it causes weaker trade intensity, the further apart the trading partners are. High significance of the coefficient on exchange rates also verifies the economic theory that the exports increase when they are cheaper. Increase of the exports results from depreciating domestic currency, in our case from the depreciation of the Euro. The value of the relative endowment is positive and highly

significant, as anticipated. We assume, that if the EU wine production per capita is going to be larger than the one of the United States, the trade intensity between these trading partners will grow, regardless a membership in a FTA with the USA. However, increased willingness to trade from the side of the EU producers results in worsened terms of trade, so the price of wine decreases. Since the US import tariffs on wine are already low, there is only a small impact of this variable on our model, its significance is only at 5% confidence level. The coefficient from the regression output on variable on being an EU member state is negative and it is a highly significant parameter (at 1%) . If the country is an EU member state, the trade intensity with the United States decreases by -0.97%. This fact can be also viewed as the trade diversion from the USA, since EU member countries tend to trade much more between each other than with the United States. What we interpret from our expectation on the ‘landlocked’ dummy variable is that not having direct access to the sea or the ocean significantly impedes the country’s availability and willingness to trade internationally. More specifically, the trade intensity with the United States is weakened by 2.94 % in the case of a landlocked country. In addition, this is a highly significant parameter.

A few cautions from the results are important to mention, with a purpose to state the clear potential of the TTIP agreement. We have verified, that there is significant trade intensity between the European Union and the United States, with respect to the wine market. Even though import tariffs on wine are much less weighty in the United States, there is sizable space on the EU side for import tariffs to be decreased. From the EU wine producers’ perspective, the current foreign trade situation is close to ideal. This fact suggests the reason why the United States initiated TTIP negotiations. To bring back its economic power and to gain new foreign markets, the United States would like to impose lower regulations on production standards,

particularly the sanitary and phytosanitary criteria regarding wine production, with the goal to become again the most competitive (the most cost-efficient) global player. Decreasing production standards results in cutbacks of production costs. These cost reductions represent an attractive side of the TTIP for the EU wine producers as well, since they can set new sales margins on their wine products. With respect to transportation costs, these would be further decreased as well within free trade area. However, the transportation costs will decrease eventually, as a result of technological advance.

We do not dispute the fact that there are potential financial gains which could be realized depending on the extent of harmonization through TTIP (see Table 7). In spite of that, this paper summarizes possible drawbacks that may accompany the TTIP. Since there are major differences in political systems, the Euro funding for the field of agriculture (an any other business field) from the financial resources of the European Union might be seen as unfair treatment with respect to the American agricultural sector. As long as the EU wine enthusiast would benefit from broader variety of wine and lowered prices, the EU wine producers and sellers would have to battle with new competition in the same time as negative price trends.

Another consideration has to be made with respect to the structure and size of the businesses in the European Union and the United States. The reason for another justified hesitancy of EU wine companies is the fact, that they might not be cost-competitive with large US corporations, they may be forced out of their business. This applies to the broad scale of businesses, more than just the wine industry. The conclusion of the TTIP agreement would also require the harmonization of wine bottle labeling. In other words, this would mean that the EU wine consumers would no longer find the information on the etiquettes they are used to. For

example the sugar content, the food pairing, or the designation of origin would be abolished within TTIP.

Abolishment of the ‘trade restrictions’ as US trade representatives call Protected Designations of Origin and Protected Geographical Indications in the EU would in fact allow the free imitating and legalized counterfeiting of wine. Moreover, there is possible loss of the linkage of the wine brand with certain location and its traditional and historical value (Champagne, Tokaj, Port wine etc.).

Another reason for staying away from TTIP is the price of the wine. The European Union together with the rest of Europe battles with wine oversupply by specific measures which incur significant costs for the EU budget. If the EU import tariffs were lifted, more of wine would be imported into the European Union and all previous effort and financial resources used to stabilize wine supply would be wasted. Some researchers might propose an objection, stating that TTIP will open new foreign market opportunities to export EU wine, but this matter has should be explored with further study.

No less important than business and money is the consumer’s health. Since this is a Thesis focused on international trade, the consequences of having single market with the United States on consumer’s health are questionable and yet to be explored. However, dramatic Anti-TTIP campaigns are currently in course in the European Union, advocating against lifting food and beverages production standards with long-term negative health effects. While in the European Union, an ingredient has to be proven safe before it is used in the production or launched to the market, in the United States the element can be used in the food or drink production until proven to be harmful for human health. There is a considerable amount of unexploited trade potential with corresponding financial benefits, but these can be attained

without decreasing EU sanitary production standards. Since the public voice has never been stronger than now, we suggest to EU policy makers to listen, otherwise the EU public refusal of official authorities can lead to large political instability, riots, crime and anarchy in the long run.

### **Further Study**

The possibilities for further research are not yet exploited. We feel that there are three obvious and fruitful lines on inquiry related to the topics covered in this Thesis. A model, focused on potential welfare gains in the United States would be worthwhile the analysis. Since the US consumers are already accustomed to less restrictive requirements and the US standards are those to be adopted by the European Union, it would make sense to compare the potential welfare gains for the US wine producers, exporters and consumers with the results from this Thesis.

Significant difference in measuring the distance variable would be more appropriate for today's globalized world. Instead of measuring distance in units of distance, it should be measured in weighted average of shipping prices from point A to point B, or similar unit of measure. Having access to historical prices from previous years, the cross-sectional data would bring reliable results implying that distance is a function of time and money, rather than of the physical remoteness.

Since the TTIP agreement is not yet signed, additional further studies can explore the consequences for international wine trade in the case that TTIP is concluded and also in the case if TTIP does not come into an effect. These facts can be then compared with this Thesis in the future to see how close these estimates were to actual observed outcomes.

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## VITA

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