

EU – REPUBLIC OF KOREA THE FREE TRADE AGREEMENT EVALUATION¹

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Abstract: *Trade areas are at the same time, a result of globalization, and one of its driving factors. We took the example of EU–South Korea Preferential Trade Agreement, as it is the first agreement that the EU has signed with an Asian country, to show how important the FTA is for both economies. We firstly looked at assumptions and theoretical background of how FTAs work, and what happens after tariff elimination. Then, we studied the EU–South Korea Trade balance, looked at the most important sectors for each country and tried to evaluate the state-of-the-art in this area. Our goal was to further analyse what factors were influencing most the mutual trade balance; therefore, we constructed a simple regression model to see what impact the tariff elimination on EU–South Korea trade balance had and what was the role other factors, for instance GDP or exchange rate played. Finally, we looked at some concerns that were raised by the EU before signing the FTA and how they turned out to be fulfilled.*

Keywords: *free trade agreement, trade balance, export*

JEL Classification: F 11, F 13

Introduction

The phenomenon of globalization is driven by three major forces among which globalization of all product and financial markets is the strongest one. The other two are deregulation and technology. Globalization of product markets results in increased economic integration in economies of scale and thus, it also results in greater trade. Trade areas are therefore on one hand a result of

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globalization, but on the other, a driving factor of this phenomenon. It is very hard to economically evaluate an impact of a Free Trade Agreement (FTA) on a country, because the barriers of trade were present before establishing the FTA are broken down in many steps; moreover, some barriers are broken long time after FTA's total implementation (such as language barriers).

The FTA talks between the European Union and South Korea were launched in 2007, the Agreement was signed on 6 October 2010 and it has been provisionally applied since 1 July 2011. This first completed Agreement in a new generation of Free Trade Agreements that were launched by the EU in 2007, is a first Agreement signed with an Asian country. It is a purely-trade oriented Preferential Trade Agreement, because currently South Korea is the EU's eight largest trade partner and the EU has become South Korea's fourth largest export destination after China, Japan and the US, however, according to EC [3], European companies are the largest investors in South Korea.

This study has a goal to evaluate the development of the on-going FTA between the EU and South Korea. Opinions of researchers differ; nevertheless, majority of the studies evaluate this FTA to be more positive for the EU. However, it is important to note that results and evolution of the FTA's impact on countries can differ greatly with time. Another goal is, by means of statistical tools, to analyse which factors are most influential on EU-South Korea trade balance.

1 Theoretical background and the FTA assumptions

It is important to look at theoretical models before evaluating the effects of a Free Trade Agreement, as the models help us understand the economic effects of a FTA. However, theory alone cannot provide clear answers to all economic effects of any FTA. This is because there are various effects of a FTA present, such as: some FTAs are beneficial (to one or both parties), others are detrimental. That is why a combination of theoretical background and empirical analysis / simulation modelling is needed (Guerin, [4]).

The neoclassical theory states two most important effects – trade creation and trade diversion. Assuming perfect competition, we show the two effects applied on trade flows between South Korea and the EU. We take the Motor Vehicle industry as an example, as it is the strongest Korean sector. We can see the real ratio of EU imports of motor vehicles per country before and after tariff elimination in Table 1. There has been a huge increase of EU imports of Korean cars between years 2010 and 2011, since the year 2011 marks the beginning of provisional application of the FTA. The number of imported cars was rising until 2013, where it hit the peak; however, comparing with the period with tariffs, the number of imported cars is still much higher in 2015, even though the imported volume has been on decline. Import of Korean cars

went probably at the expense of Japanese and Indian cars, since they still bore the tariffs on them.

Table 1

EU imports in Motor Vehicle industry by country, in units (2015)

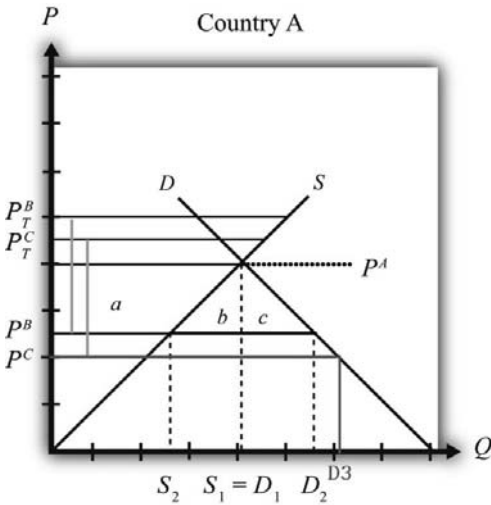
	2010	2011	2012	2013	2014	2015	Trend
World	2,494,969	2,634,179	2,462,253	2,442,309	2,628,245	3,076,163	↑
Turkey	571,304	580,076	585,392	584,693	707,560	843,112	↑
Japan	613,975	526,270	406,982	384,694	439,678	480,536	↓
South Korea	299,765	388,230	408,266	406,376	348,815	376,142	↑ - ↓
China	171,399	179,795	197,908	184,349	191,376	241,764	↑
India	227,561	234,197	162,652	175,464	107,775	98,503	↓

Source: authors, based on Eurostat and European Automobile Manufacturer's Association.

Figure 1 shows a theoretical example, where tariffs are removed and trade, that would not have existed otherwise, is created. After signing the FTA, tariffs are reduced from 10% to 0 %, imports increased by 28.8%. Let us assume, country A is the EU, country C is Korea, and country B can be India, for example. The graph shows the supply and demand curves for the EU. Korea is assumed to be supplying the motor vehicles at lower price than India. (However India must have tariffs or other trade restrictions on imports from Korea, or else all of India's market would be supplied by Korea).

Figure 1

Trade creation



Source: SURANOVIC, Steve: “International Trade: Theory and Policy”. Available online at: <http://www.flatworldknowledge.com/pub/international-trade-theory-and/199769#>

We assume that the EU has a specific tariff $t_B=t_C=t^*$, set on imports from India and South Korea. With this tariff, the autarky price in the EU, labelled p^A is less than tariff-ridden prices p^B and p^C , the product is not imported. EU supplies its own demand. When tariffs on both countries, Korea and India, are eliminated, supply occurs from a more-efficient supplier- Korea. The p^C is the lowest now. Demand will extend to the level D_3 . Trade is created.

The effects of trade creation can be seen in *Table 2*, where the expensive domestic production is replaced by cheaper imports; notably machinery & appliances represent the largest sector where duties are saved with gains for Korea close to €450 million.

Table 2

Sectors gaining and losing most from a full FTA agreement

	EU		Korea	
Gainers	Other business services	0.7%	Motor vehicles	28.8%
	Communications	0.3%	Electrical machinery	27.1%
	Transport	0.2%	Iron and steel	18.1%
	Financial and banking services	0.2%	Non-ferrous metals	10.7%
	Other services	0.1%	Other machinery	10.6%
	Trade	0.1%		
Losers	Motor vehicles	-1.7%	Other business services	-23.1%
	Electrical machinery	-1.7%	Communications	-6.7%
	Non-ferrous metals	-1.0%	Beef	-2.25%
	Iron and steel	-0.9%	Other services	-2.4%
	Textiles	-0.6%	Other primary agriculture	-2.3%

Source: “A Qualitative Analysis of a Potential Free Trade Agreement between the European Union and South Korea”; Centre for European Policy Studies. P. 75. Available online at: <http://trade.ec.europa.eu/doclib/docs/2007/december/tradoc_136964.pdf>

According to previous studies and simulations, in 2007 it was predicted that the EU could increase its exports to South Korea by €19 billion, whereas South Korea’s exports to EU can go up by €17 billion. In 2011 the predictions, according to European Commission, changed to: FTA is expected to create new trade in goods and services worth €19.1 billion for the EU and €12.8 billion for Korea. However, in 2015 EU exports of goods (excluding services) to South Korea amounted to €47.9 billion, mainly in categories such as machinery and appliances, transport equipment and chemical products, whereas imports from South Korea were €42.3 billion, mainly in machinery and appliances, transport equipment and plastics (EC, [8]).

There exist also, trade diverting effects: While EU increases trade with South Korea, it reduces intra-EU trade of nearly half of the gross trade creating effect with South Korea. The EU creates €7 billion total net trade, South Korea €14 billion. The welfare and GDP implications are modest, although higher in Korea ~ 1.3% of GDP.

Apart from the neoclassical trade theories, there are the newer trade theory effects such as: ‘Love of variety’ effect, Scale effect, Profit shift effect, Capital movement, Firm selection, however, due to the limited scope of this paper, we do not explain them in detail.

2 EU-South Korea trade balance

The European Union, as well as South Korea have important positions within world trade. While the EU is the world's largest exporter of goods and services, South Korea has developed into one of Asia's leading economies over the last couple of decades (Hussain, [5]).

Looking at the details of trade flows between the EU and South Korea, it is evident that the European export is mainly driven by the machinery and automotive sectors, which represent almost half of total exports. Approximately one fifth is made up of chemicals and other manufactures articles. The rest of export is ensured by the machines for making integrated circuits, medicines, crude oil, or uranium. On the other hand, the European import from South Korea depends on machinery and vehicles (app. 75%) followed by other manufactured articles mainly cell phones, electronic components and ships.

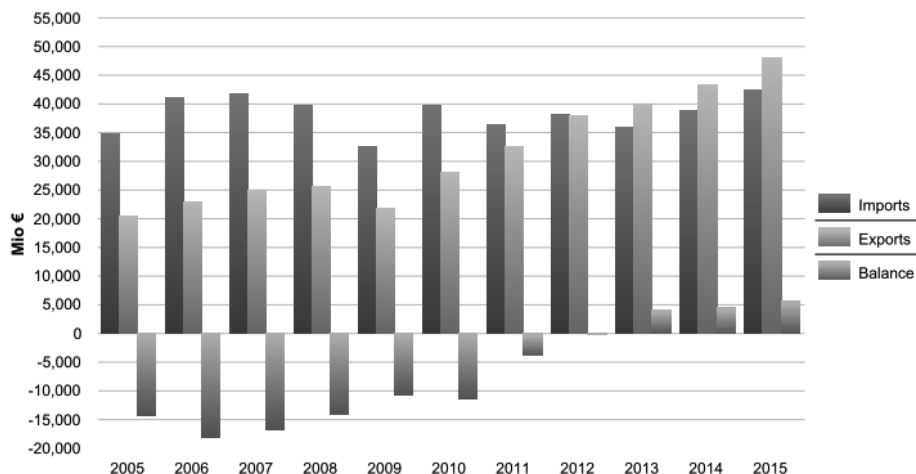
Concerning the service sector, the EU exported 7.2 billion euro of services to South Korea, while imports from South Korea amounted to 4.0 billion. The positive difference for the EU is mainly represented by other business services, transport, royalties and licence fees.

Figure 2

EU – South Korea trade (import, export, balance), 2005-2015

Total goods: EU Trade flows and balance, annual data 2005 - 2015

Source Eurostat Comext - Statistical regime 4



Source: European Commission, available online at: http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113448.pdf

The EU and South Korea trade importance can be also seen in *Figure 2*. As shown, the import during last ten years fluctuated between 30 up to 40 billion EUR. On the other hand, export increased dramatically. While EU's export was approximately 20 billion in 2005, it reached almost 45 billion EUR in 2014 which is an increment of 25 billion EUR. Significant change in the EU-South Korea trade relationship has occurred in 2012. The difference between imports and exports was only 0.2 billion EUR. In addition to this, next two year balance has even turned from a long-term deficit into a surplus. Finally, data shows that during the first three years of the agreement, EU exports of goods to Korea increased by 35%, from €30.6 billion in the year before the entry into force of the FTA, to €41.5 billion.

3 Trade balance model

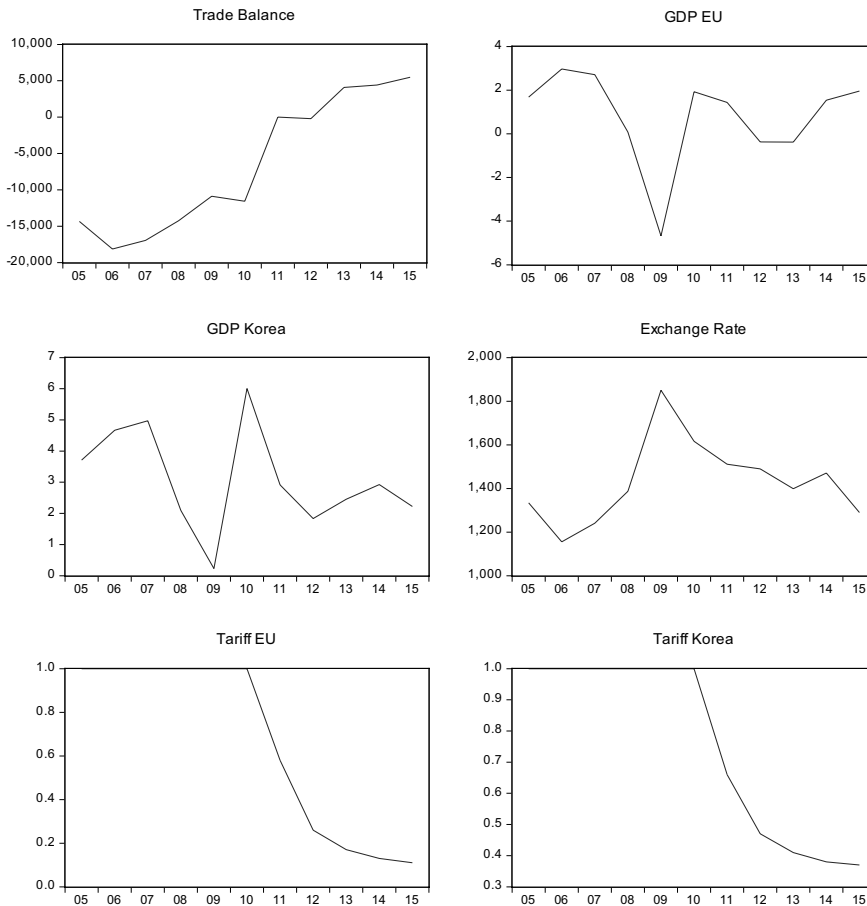
As shown above, EU reached a positive trade balance in 2012. However, was this only due to further tariff elimination from the Korean side, or were there other factors in play? In order to answer these questions, we constructed a simple regression model, using OLS method. At first, we wanted to use a VAR model; however, there was not enough data to do that. We took the last ten years (2005-2015) and included 5 explanatory variables in the model – EU's GDP, South Korean GDP, euro/krw exchange rate, cumulative tariff elimination on EU side and on Korean side. The equation looks as follows:

$$\text{TRADE BALANCE} = C(1) + C(2)*\text{GDP-EU} + C(3)*\text{GDP-KOREA} + \\ C(4)*\text{EXCHRATE} + C(5)*\text{TARIFF-EU} + C(6)*\text{TARIFF-KOREA} \quad (1)$$

The graphical representations of our six variables, including Trade balance as the dependent variable can be seen in *Figure 3*. We can see, that EU-Korea trade balance is going upwards, creating a positive balance for the EU. There have been fluctuations in both, EU's and Korean GDP over the past 10 years. The euro/kwa exchange rate has a decreasing trend, meaning the South Korean Won is appreciating towards Euro. Both countries started with gradual elimination of tariffs in 2011. First year, South Korea eliminated 33% of all tariffs, meaning a 66% tariff duty on all imported products to the country. Next year South Korea eliminated another 19%, resulting in overall 47% tariff duty on all imported goods. Similarly, EU eliminated 52% of all tariffs the first year, 32% the second year, and so on.

Figure 3

Graphical representations of variables included in a model



Source: authors.

The results of our model are shown in Table 2. We acknowledge that, at first sight, the model does not show much statistical importance. It is due to the lack of data, since we had to work with annual data. However, on the other side, we would like to highlight the results we can draw out of it, such as: Looking at the coefficients signs, we see that (1) with rising GDP of EU, the EU-Korea Trade balance rises, which corresponds to the economic theory; (2) with declining Korean GDP, EU-Korea Trade balance goes down in favor of Korea; (3) with rising eur/krw exchange rate the EU-Korea Trade balance goes up. As we know, exchange rate is the key element influencing balance of payment and trade balance (Nazeer et al., [9]), and this one came closest to be statistically significant also in our model with few observations. (4) As the EU tariff duty rises, meaning less tariff elimination for Korea, EU-Korea

trade balance goes up in favour of the EU, with (5) resulting in the same, vice versa.

Table 2

Model output

Dependent Variable: TRADE BALANCE

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10790.78	22564.15	0.478226	0.6527
(1) GDP-EU	714.8174	1076.034	0.664308	0.5359
(2) GDP-KOREA	-502.9931	1026.223	-0.490140	0.6448
(3) EXCHRATE	13.58895	7.026286	1.934017	0.1109
(4) TARIFF-EU	33513.61	39844.23	0.841116	0.4386
(5) TARIFF-KOREA	-76863.98	56707.19	-1.355454	0.2333
R-squared	0.980999	Mean dependent var		-6577.891
Adjusted R-squared	0.961997	S.D. dependent var		9314.604
S.E. of regression	1815.819	Akaike info criterion		18.14891
Sum squared resid	16485992	Schwarz criterion		18.36595
Log likelihood	-93.81902	Hannan-Quinn criter.		18.01210
F-statistic	51.62762	Durbin-Watson stat		2.905121
Prob(F-statistic)	0.000265			

Source: authors.

The Granger test showed that exchange rate has a causal effect on trade balance on 10% statistical importance level. Furthermore, it showed that EU's GDP is causal to EU and Korea tariff elimination on 5% significance level, which may be misleading, because tariff elimination had been agreed on beforehand. Another interesting result is that exchange rate is Granger causal on both, EU and Korea, tariff elimination on 5% significance level.

4 Verification of fulfilment of concerns raised by the EU

Several EU concerns about FTA implementation were raised in some European countries and associations. We present an overview of fears and concerns in observed sectors.

The Motor Vehicle Industry, or more precisely, the automotive sector, has raised a lot of concerns about FTA implementation and the extent to which safeguards were set on mutual imports and exports. In the beginning, the European Automotive Manufacturers' Association (ACEA) called for reopening of negotiations on duty draw back system and rules of origin. It argued that South Korea had more advantages to include parts from foreign countries (like China) in the final product, without giving the same option to

European manufacturers. Furthermore, ACEA pointed out to the non-tariff barriers that persisted in South Korea, and because of which EU exports did not raise the same rate as South Korean ones. To address this problem, the FTA later implemented ambitious provisions under which Korea accepts EU standards or any other international standards for all major technical regulations, which significantly facilitated EU exports of motor vehicles (EC, [2]). Korean import car market was monopolized by German manufactures, mostly of luxury cars like BMW, Porsche, Mercedes, but Citroen and Fiat saw their chance to re-enter the market at the wake of FTA implementation, targeting people in their 20s and 30s to buy smaller passenger cars, which their offer in great varieties. Meanwhile, Korean medium range cars sell very well in the EU (Hyundai and KIA). Korean carmakers have also built several production plants in the EU.

The textile industry has feared increased competition from Korean market, having in mind similar Asian products, mostly coming from China that flooded the European market with low quality goods, which resulted in closing down of small to medium clothing production plants and loss of jobs. However, big European manufacturers that produce luxury brands perceive this FTA as too complicated labyrinth of certification procedures and rules of origin that were already complicated enough before FTA implementation (Borderlex, [7]). Many of European producers do not even take advantage of this FTA⁴, and rather pay normal MFN import tariff duty rates regulated by World Trade Organization.

Non-tariff barriers play crucial role in another important EU export sector – Pharmaceuticals Products and Medical Devices. Pharmaceuticals Industry represents EU's fifth largest industry with 600 000 jobs in Europe and exports to Korea 12 times higher than imports. Medical devices sector creates another 530,000 jobs (Perreau de Pinnick, [6]). Even though South Korea promised to eliminate all tariffs in both abovementioned sectors over the five-year period, the primary obstacles for EU exports to Korea remain almost un-tackled: non-tariff barriers associated with registration, certification, pricing and reimbursement rules (EC, [1]). Special Working Groups were set to watch over the implementation of regulatory standards and promoting competition between the two parties, to ensure transparency and clarity of rules).

Conclusion

The study compared assumptions about future development with the actual results and stated possible reasons for such development. However, it does not show the complete picture of the FTA, it is more of an evaluation of current developments in the issue, with data available until the year 2015.

4 For more information see Most favoured nation's clause.

From theoretical point of view, we presented how FTA works. However, the study concentrated more on the EU-South Korea FTA evaluation part. We have seen that EU-South Korea trade balance was more favourable for Korea until 2012, when it started to be positive for the EU for the first time. We also wanted to know what the driving factors of such change were. We constructed a simple regression model with EU-South Korea Trade balance as dependent variable. With help of explanatory variables such as GDP and cumulative tariff elimination of both countries, and their mutual exchange rate, we can see that there are more than one factor that contributed to the current trade balance developments. Exchange rate is a very important factor, but GDP of the EU is the second one.

As a final remark, we are not aware of studies that would build models with social implications and therefore, we cannot say this model, focusing purely on the export-import side of the FTA, can totally explain all effects and results of the not yet fully implemented FTA. However, after full FTA implementation, this study can serve as an inspiration for another evaluation of the development of the FTA.

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