The "Revealed" Comparative Advantage and Competitiveness of the EU´s International Trade vis à vis the USA[1]

*Saleh Mothana OBADI – Matej KORČEK**

Abstract

This paper examines "revealed" comparative advantage (RCA) and international trade specialisation in the EU and USA as comparative analysis between the mentioned trade partners. In the midst of preparations for the potential Transatlantic Trade and Investment Partnership (TTIP) it is necessary to examine the sectoral competitiveness of EU in relation with its trade partner – the USA. For this aim, in our analysis we have used Balassa´s index of RCA and other alternative measures of comparative advantage as well as empirical analysis for identifying the comparative advantage trend. According to our empirical analyses we found that, while, based on Balassa's RCA index, the EU-28 has reached a comparative advantage in smaller group of 2-digits SITC commodities (32 out of 66) than the USA (40 out of 66), based on the other alternative measures and econometric analyses, the EU has not only reached a comparative advantage in more industries, but also a more stable trend of international specialisation than the USA during the examined period.

Keywords: *comparative advantage, competitive advantage, competitiveness, EU, USA*

JEL Classification: F10, F11, F14

Introduction

European Union is the largest trade player in the world. Its total trade amounts to more than one third of the world trade (about 40% of world trade in the 90th of 20th century). However, the position of EU trade faces many challenges

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to maintain its magnitude, especially in the last decade where many large economies in the world have registered more dynamic economic growth and export performance, such as China and USA. As a common market, European Union, passed through several stages of integration until it reached the current high level of economic integration, starting from the European Coal and Steel Community founded by six countries, which began to unite European countries economically and politically in order to secure lasting peace, to a nowadays Economic Union consisting of 28 countries.

In the light of an increasingly competitive international environment and especially in the time when the EU is potentially going to sign the TTIP with USA, it is useful to examine where EU's comparative advantage lies and to what extent the EU´s international trade competitiveness is with comparison with the USA. The comparative advantage is the term used to describe the tendency for countries to export those commodities that they are relatively adept at producing, *vis-à-vis* to the rest of the world. In other words, if a country can produce a good at a lower relative costs than other countries, then with international trade, that country should devote more of its scare resources to the production of the good (Addison-Smyth, 2005). Through trade, that country can obtain other goods at a lower price (opportunity cost), in exchange for the good in which it has a comparative advantage.

Comparative advantage is a widely used concept in international trade since Ricardian classical theory of trade. Thus, according to the mentioned Ricardian theory, we can say that the stronger comparative advantage leads to larger gains from trade. In the same spirit with some simplification of variables Balassa (1965) has come with new term called "Revealed" Comparative Advantage (RCA).

The main objective of this paper is, to examine RCA and international trade competitiveness and/or trade specialization in the EU and USA by using empirical methods as a sectoral comparative analyses between the mentioned trade partners. The significance of this paper is in assessing the level of comparative advantage of EU in relative to USA, especially in the time of intensive preparation of the TTIP agreement between the mentioned trade partners. Indeed, in this paper we do not desire to discuss the issue of TTIP agreement neither to assess its potential effect. However, the results of our analysis in this paper, could be one of the underlying documents for analysing the potential effects of the TTIP.

This paper is divided to 6 sections, after the introduction, the second section is allocated for the literature review, which have discussed more or less similar issues like our examined topic. In the third section we introduce the methodology, methods and data used in our analyses. The fourth section is focused on a brief

analysis of the development of mutual trade relation between the EU and USA and finally the fifth and sixth sections are dedicated to empirical findings and conclusion respectively.

1. Literature Review

Comparative advantage or international trade competitiveness of country or block of countries have been quantified by a number of authors in several papers and studies by using many techniques and methods. However, the task of quantifying comparative advantage empirically is not a trivial endeavour because the rigor of economic theory imposes severe restrictions and because country and commodity aggregations necessarily entail conceptual compromise. One problem is that the theoretical concept of comparative advantage is usually specified in terms of pre-trade relative prices in a distortionless world where markets function perfectly. Unfortunately researchers are confronted with data generated by trade flows in post-trade equilibria (Vollrath, 1991).

Balassa's index of "revealed comparative advantage" Balassa (1965) is widely used in scientific economic papers and studies for more than five decades. This measure has been also applied in numerous reports and academic publications to measure international trade specialization and to gauge technological specialization based on patent data (e.g., Soete and Wyatt, 1983; Cantwell, 1995; D'Agostino et al., 2013), and to capture production specialization (e.g., Iapadre, 2001; Laursen and Salter, 2005). However, although previous work has examined the properties of this measure in detail (e.g., Yeats, 1985; Vollrath, 1991; Hinloopen and van Marrewijk, 2008), not enough is known about the effects of it being asymmetric around its neutral value, and moreover, it is not clear how the Balassa´s index compares to other measures of international specialization (Laursen, 1998). RCA have been used also in some other papers and studies as a measure of country´s trade specialization in comparison with other trade partners or trade blocks, see for example Utkulu and Seymen (2004), Obadi (2004; 2005; 2012) and Startienėa and Remeikienė (2014), as a measure of country´s revealed comparative advantage as a whole and its internal regions, see for example Yue and Hua (2002) and Clark et al. (2005) and as a measure for international trade specialization (Pavličková, 2013).

This measure with some modification has been used by Balassa and Noland (1989) in their paper *"revealed comparative advantage in Japan and the USA"* where they examined the changing comparative advantage of Japan and USA. RCA in their paper has been derived for 57 primary and 167 manufactured product categories and has further been aggregated for 20 commodity groups. The

authors found that Japanese pattern of specialization have during the period 1967 – 1983 changed dramatically with Japanese shifting from specialization in unskilled labour intensive goods to human capital intensive products while its comparative advantage increased in natural resources intensive products. The USA maintained its specialization in physical and human capital intensive goods, while increasing its comparative advantage in natural resources intensive products. Both countries increased their comparative advantage in high technology products. For quantifying the international trade dynamics, Proudman and Redding (2000) with some modifications have also used Balassa´s index (1965) and with other techniques employed they tried to evaluate the distribution of RCA over time.

The RCA index has been employed also in other papers for quantifying a comparative advantages of the specific commodities, by such as Bhattacharyya (2011), which tried to quantifying the extent to which India has a comparative advantage in vegetable, fruits and flower trade in the Asian, EU and North American (USA & Canada) markets as compared to selected other South East Asian countries. For the same purpose Serin and Civan (2008) which tried to quantifying the extent to which Turkey has a comparative advantage in the tomato, olive oil, and fruit juice industries and how this has changed over the period 1995 – 2005 in the EU market. Also Fertő and Hubbard (2002) which examined the competitiveness of Hungarian agriculture in relation to that of the EU, employing four indices of revealed comparative advantage, for the period 1992 to 1998. In the same direction Muendler (2007) has constructed a series of comparative advantage measures for Brazilian agriculture, mining and manufacturing sectors between 1986 and 200, and applied a correlation between the comparative advantage series and trade-related variables.

Although Balassa´s index is widely used for identification of international trade specialization or sectoral competitiveness, it is a subject of critics. Therefore, in the literature there are many other alternative indices and methods exist for the same purpose.

To the critics of Balassa´s index, have joined in the last years some authors, such as Leromain and Orefice (2013), which tried to construct a "New Revealed Comparative Advantage Index". They recognized that "Balassa´s index (1965) is widely used in the literature to measure country-sector Revealed Comparative Advantage. However, being computed on observed trade flows, it mixes up all the factors influencing trade flows. In particular, Balassa´s index cannot isolate exporter-sector (ex-ante) specific factors which are the source of comparative advantage in the spirit of the traditional trade model. Furthermore, Balassa´s index suffers some empirical distribution weaknesses, mainly time instability and poor ordinal ranking property (Yeats, 1991; Hinloopen and van Marrewijk,

2001)". They have build up on their paper, and presented "a dataset providing a new econometric based measure for Ricardian RCA".

Balassa (1965) in his paper recognized that comparative advantage is not easily measurable, since it is influenced by many factors and conditions. "Comparative advantage appear to be the outcome of a number of factors. Some measurable, others not, some easily pinned down, other less so. One wonders, therefore, weather more could not be gained if, instead of enunciating general principles and trying to apply these to explain actual trade flows" (Balassa, 1965).

In spite that, there are many discussions and critic views toward Balassa´s index (1965). Many of them argued that the most popular method of measuring comparative advantage, the one of revealed comparative advantage (Balassa, 1965), does not really measure comparative advantage in a rigorous sense. Instead, it is really a measure of competitive advantage, as it reflects export performance, which can result from either real factors or from price distortions and subsidies (Siggel, 2006). His assessment: "With respect to the generality of the principle of comparative advantage, two positions can be identified in the literature. The first is that comparative advantage is limited to Ricardian and Heckscher-Ohlin-type trade and does not apply to other forms of trade, such as intra-industry trade. The second is a more general interpretation of the principle. It suggests that a producer has comparative advantage if his/her production costs in terms of equilibrium factor prices are lower than those of an international competitor, irrespective of what the sources of the cost advantage are." In our point of view, the both terms are appropriate, though, the competitive advantage is more appropriate for this measure, since it doesn't reveal whether the export performance of the country is as a result of government subsidies or other factors, such as productivity, low labour cost etc.

2. Data and Methodology

2.1. The Dataset

The dataset contains annual data of 66 groups of commodities for the examined trade partners. From the United Nations Comtrade Database, it is possible to get a detailed breakdown of country´s merchandise exports and imports by United Nations' Standard International Trade Classification (SITC), which is the mean by which exports are classified according to theirs commodity type. According to the mentioned database, there are ten main headline SITC categories which are broke down to more detailed commodities.

These more detailed breakdowns are important, as there are a number of quite diverse categories within each broad SITC heading. In our analyses we will just use the 2 digits SITC (Rev. 3) for the period 2000 – 2014. For trade data for the rest of the world, the UN Comtrade Database was used, with detailed data available up to 2014. By using this classification, it is possible to examine EU and USA trade patterns across a range of commodity types (66 groups of commodities).

After that, we organized the SITC commodities to more comprehensive taxonomy groups, according to Anderson and Wincoop (2004) and Peneder (1999) based on typical patterns of factor combinations, such as the relative abundance of capital or labour, and endogenously created firm specific advantages resulting from intangible investments in marketing or innovation (see the Table 1).

T a b l e 1

Taxonomic Groups

Taxonomic group	2-digit codes of SITC
Mainstream manufacturing	58, 62, 66, 71, 72, 73, 74, 75, 76, 78, 79
Labour-intensive industry	21, 24, 61, 63, 65, 77, 81, 82, 84
Capital-intensive industry	23, 25, 26, 28, 32, 33, 34, 51, 52, 56, 57, 64, 67, 68, 69, 96, 97
Marketing-driven industry	00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 11, 12, 22, 29, 42, 43, 55, 83, 85, 89
Technology-driven industry	27, 53, 54, 59, 87, 88

Source: Anderson and Wincoop (2004); Peneder (1999).

2.2. Methodology

Trade Intensity

Before computing the indices and models for identifying the comparative and competitive advantage of EU international trade with comparison to international trade patterns of USA, it is needed to evaluate the trade intensity dynamics between the mentioned trade partners.

For this purpose, we have calculated the Trade intensity index (TII), (Kunimoto, 1977; Vollrath, 1991) which takes each country's total imports and exports as given, divides the determinants of international trade into two categories: those which influence the levels of total imports and exports of the countries in the world and those which influence their geographical distribution. It then assumes a hypothetical world in which the "subjective" of trade determinants is absent, or in other words, that the hypothetical world consists of countries with no "geographic specialization" in international trade (Chen and Li, 2014). When the deviation is expressed by their ratio, we obtain the geographic trade intensity index (TII_{ij}):

$$TII_{ij} = \left(\frac{X_{ij}}{X_{iw}} \right) / \left(\frac{M_{iw}}{\sum M_{ww}} \right) = X_{ij} / E\left(X_{ij} \right) \qquad \text{where}$$

$$E\left(X_{ij} \right) = X_{ij} * \left(\frac{M_{iw}}{\sum M_{ww}} \right) \tag{1}$$

The trade intensity index gauges trade levels between country *i* and *j* in relation to country *j*'s average trade share across all countries of the world. The index is unity if the actual trade flow is equal to the hypothetical 1 and it indicates that the actual bilateral trade inflow of a country with its trade partners is less (more) intensive than its world average level if the index is below (above) unity. The intensity approach overcomes the economy-size problem encountered in cross-country comparisons of trade shares and is convenient for comparing the bilateral trade tendencies. Therefore it is often referred to as an indicator of bilateral trade statues and barriers.

"Revealed" Comparative Advantage and "Revealed" Competitiveness

Comparative advantage is a very much dynamic concept in the sense that a country's ability to produce certain goods changes through time, in response to a variety of endogenous and exogenous factors such as changes in factor endowments, including technology and human capital (Obadi, 2012).

There are a number of ways to examine whether or not a country has a comparative advantage in its international trade in comparison with other world. One common method is to determine how specialized a country is in the production of a good through constructing Balassa´s index (1965). This examines the proportion of a good produced or exported, or the numbers employed in each industry, relative to other countries (Addison-Smyth, 2005).

In simple terms, a country that has a comparative advantage in the production of a good should be found to export a higher proportion of that good relative to other countries. Therefore, this study seeks to determine EU's revealed comparative advantage by using international trade data to compare exports in particular industries with the rest of the world and particularly with the USA. Since we are interested in the revealed comparative advantage of EU and the USA, we measure RCA of EU and USA on the global level as the comparator. Country's revealed comparative advantage (RCA) (Balassa, 1965) can be defined as:

$$RCA_{ia} = \left(\frac{X_{ia}}{\sum X_{ia}} \right) / \left(\frac{X_{iw}}{\sum X_{iw}} \right) \tag{2}$$

where

RCA_{ia} – revealed comparative advantage for good *i* and country *a*;

X_{ia} – exports of good *i* from country *a;*

$\sum X_{ia}$ – total exports from country *a;*

X_{iw} – world exports of good *i;*

$\sum X_{iw}$ – total world exports.

If $RCA_i > 1$, then country has a comparative advantage in good *i*. If $RCA_i < 1$, then country has a comparative disadvantage in good *i*.

The RCA index, thus, contains a comparison of national export structure (the numerator) with the world export structure (the denominator). When RCA equals *one* for a given sector in a given country, the percentage share of that sector is identical with the world average. Where RCA is above *one* the country is said to be specialised in that sector and *vice versa* where RCA is below *one*.

Through applying the above formula to EU, USA and world trade data, it is possible to identify the sectors and industries in which both the EU and USA has a comparative advantage and specialization and has a potential to increase its export not only between them but also to the rest of countries in the world.

Although this is a widely accepted approach for analysing trade data and comparative advantages, the definition and empirical adaptation of RCA is subject to controversies and thus some alternative measures now exist. Thus, Vollrath (1991) suggested three alternative specifications of revealed comparative advantage, as follow. In this paper we have computed the following alternative measures of comparative advantage:

$$RCA_2 = X_{ia} / E(X_{ia}) \quad \text{where} \quad E(X_{ia}) = \sum X_{ia} * \left(\frac{X_{iw}}{\sum X_{iw}} \right) \tag{3}$$

In a global market free of distortions, RCA_2 deviates from unity when a country's exports are not distributed according to the relative importance of each commodity in world trade. Following Vollrath (1991), deviations of RCA_2 above unity indicate comparative advantage, while deviations below unity indicate comparative disadvantage. Neutral comparative advantage occurs when the ratio of actual-to-expected exports is one.

Vollrath (1987; 1989) also offered further alternative measures, when he examined trends of international competitiveness in agriculture. In the mentioned analyses a concept called revealed competitive advantage and three global trade intensity measures. He called them *relative trade advantage* (RCA_3), *relative export advantage* (RXA_{ia}), *relative export advantage* (RMA_{ia}) and *revealed competitiveness* (RC_a). The three measures, defined below, represent alternative definitions of revealed comparative (competitive) advantage:

$$RCA_3 = RXA_{ia} - RMA_{ia} \qquad \text{where} \tag{4}$$

$$RXA_{ia} = \left(\frac{X_{ia}}{\sum X_{ia}} \right) / \left(\frac{X_{iw}}{\sum X_{iw}} \right)$$

$$RMA_{ia} = \left(\frac{M_{ia}}{\sum M_{ia}} \right) / \left(\frac{M_{iw}}{\sum M_{iw}} \right)$$

$$RC_a = \ln\left(RXA_{ia}\right) - \ln(RMA_{ia}) \tag{5}$$

Positive values of three measures, RCA_3, ln(*RXA*), ln(*RMA*) and RC_a, reveal a comparative/competitive advantage as well as "revealed" competitiveness. However, since the RCA turns out to produce an output which cannot be compared on both sides of 1, the index is made symmetric, Dalum et al. (1998) and Laursen (1998). The measure is labelled "Revealed Symmetric Comparative Advantage" (RSCA) and mathematically obtained as :

$$RSCA_{ij} = \frac{(RCA_{ij} - 1)}{(RCA_{ij} + 1)} \tag{6}$$

This measure ranges from –1 to +1, which mean that it avoid the problem of zero values, which occur in the logarithmic transformation (when an arbitrary constant is not added to the RCA) (Dalum et al., 1998).

The methodology for testing whether examined (in our case) trade partners are stable sectors and whether they tend to become more or less specialized intra-country on the one hand and the test of whether the examined trade partners tend to converge within the same sector on the other hand and analogous. For this purpose, in this paper we employed a regression model which has been used by Dalum et al. (1998). The model can be given as follow:

$$RSCA_{ij}^{t_2} = \alpha_i + \beta_i RSCA_{ij}^{t_1} + \epsilon_{ij} \tag{7}$$

where t_1 and t_2 refer to the initial year and the final year, respectively. The dependent variable, RSCA at time t_2 for sector *i*, is tested against the independent variable which is the value of the RSCA in the previous year t_1. α and β are the standard linear regression parameters and ϵ is a residual term. Basically, the size of β measures how stable the specialisation pattern of a country has been, between the two periods. If β is low, one can talk about a high degree of turbulence, while the pattern can be said to be unchanged, if β is not significantly different from one. In other words, if $\beta > 1$ might be termed β – *specialization*. If $0 < \beta < 1$, can be termed β – *despecialization*. β/R (R is the correlation coefficient from the

regression) measures whether the level of specialisation has gone up or down between the two periods (an increase or a fall in dispersion of specialisation). If $\beta/R > 1$, specialisation increases, while specialisation decreases, if $\beta/R < 1$.

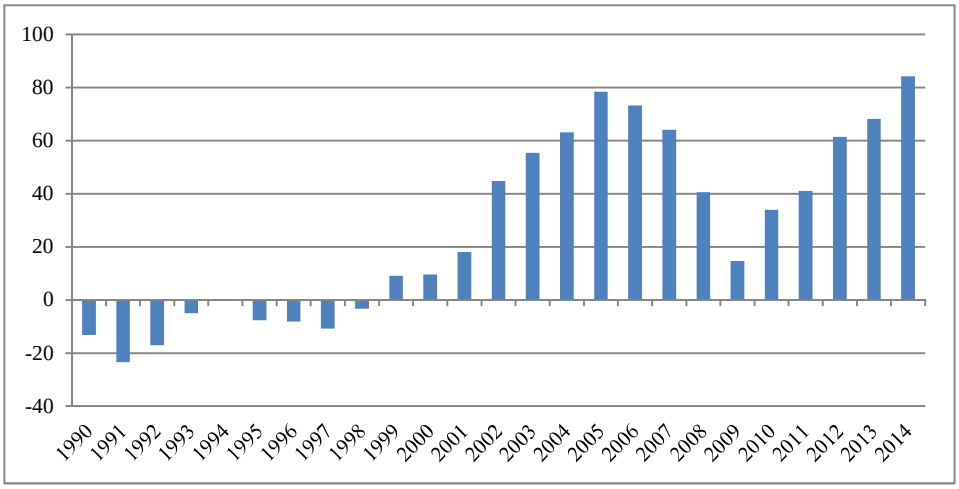
For estimating α and β we have used the technique of Ordinary Least Squares (OLS).

3. Development of the Mutual Trade between EU and USA

The US market is one of the most important and the biggest EU's extra-trade markets, with the 18.3% share on the EU's extra-trade. The mutual trade in the last years has reached about 670 billion USD per year and is still in the increasing trend. The interesting for the EU is that, after long lasting trade deficit, it has registered a trade surplus since 1999. Of course, one of the reasonable explanations for that shift was due to the political and economical reforms, economic growth and then the increasing international trade in the new member states of the EU, which started exporting to US market. The other reason was the deployment of the EU's common currency ECU and then EUR, which contributed to the increase of the export and the little decrease of the EU's import.

F i g u r e 1

Trade Balance of EU with USA (in billion USD)



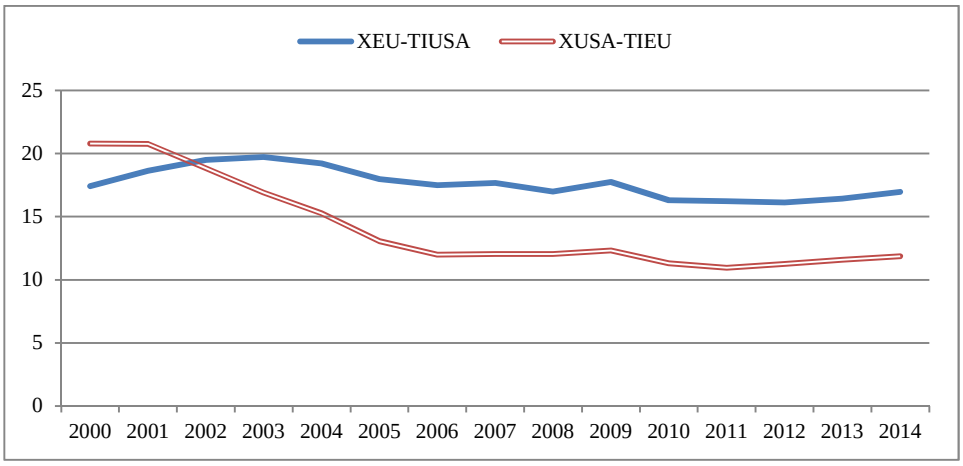
Source: Author´s calculations based on UN Comtrade Database (2016).

Apart from the year of deep international economic crisis, the EU's export to the US market has recorded a high growth since the 2000's. But the EU's import from the US market has registered a negative growth in 5 out of 14 years. It is

clear from the below figure, at least during the period 2002 – 2012, the share of EU´s export to the US market in total import of USA has signed a slightly decreasing trend from about 17,5% in 2002 to about 16,0% in 2012 then the share has gone up to 17,0% in 2014, but the US export to the EU market has an unbegous decreasing trend from 20,8% in 2001 to about 11,0% in 2012 then to 11,8% in 2014. This development of mutual trade flows means that there are more EU´s products exported to the US market than the US products exported to the EU market, thus we can say (with reservation) that the EU has a competitive advantage in the US market.

F i g u r e 2

Share of the EU´s Export to USA in the Total Import of USA and Share of the US Export to the EU in the Total EU´s Import (in %)



Note: XEU-TIUSA denote to the share of the EU´s export to USA in the total import of USA, XUSA-TIEU denote to the share of the US export to the EU in the total EU´s import.

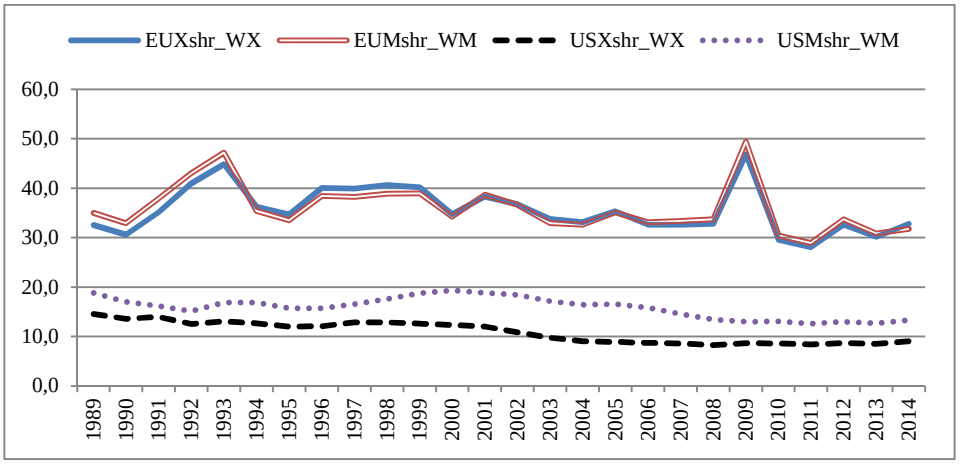
Source: Author´s calculations based on UN Comtrade Database (2016).

Since the US economy is still the biggest one in the world, it is necessary for any economy, including the EU's economy, to intensify the economic relationship with it. In spite of the good trade relationship between the EU and USA, for the EU, the USA is considered as one of the biggest trade competitors. Regarding the trade relations, given the low average tariffs (under 2%), the key to unlocking this potential lies in tackling non-tariff barriers, which consist mainly of customs procedures and behind-the-border regulatory restrictions.

These barriers are more difficult to address than tariffs, especially in formal agreements, as they are based on different approaches to regulation, often deeply rooted in historic or societal approaches and political realities (European Commission, 2013).

F i g u r e 3

Export Market Shares of the EU and USA in World Export



Note: EUXshr_WX and EUMshr_WM – share of EU export in world export share of EU import in world import.
USXshr_WX and USMshr_WM – share of US export in world export share of US import in world import.

Source: Author´s calculations based on UN Comtrade Database (2016).

As we know, the contribution of the US export to US GDP is about 10%, while the EU's export share is about 43% of GDP (Eurostat, 2016). That means, the international trade plays the important role in the EU economy, particularly in today's difficult economic circumstances, it has become an important mean of achieving the much needed growth and job creation without drawing the public finances. It is the conveyor belt that links Europe to the new global growth centres and is a unique source of productivity gains. The EU, which is benefitting much more from globalisation than is sometimes portrayed, is well positioned to benefit from this intensified international trade"(European Commission, 2013). In the global level, the EU's export share in the world export accounts to about 33%, which is about three times bigger than US export share in the world export (see Figure 2). Due to the increasing of competitiveness of many developed and emerging economies in global export market, the EU's export share in the global export declined from about 40% in the beginning of the first decade of the third century. This paper thus, focuses on identifying the comparative advantage as well as international trade specialization in comparison with USA.

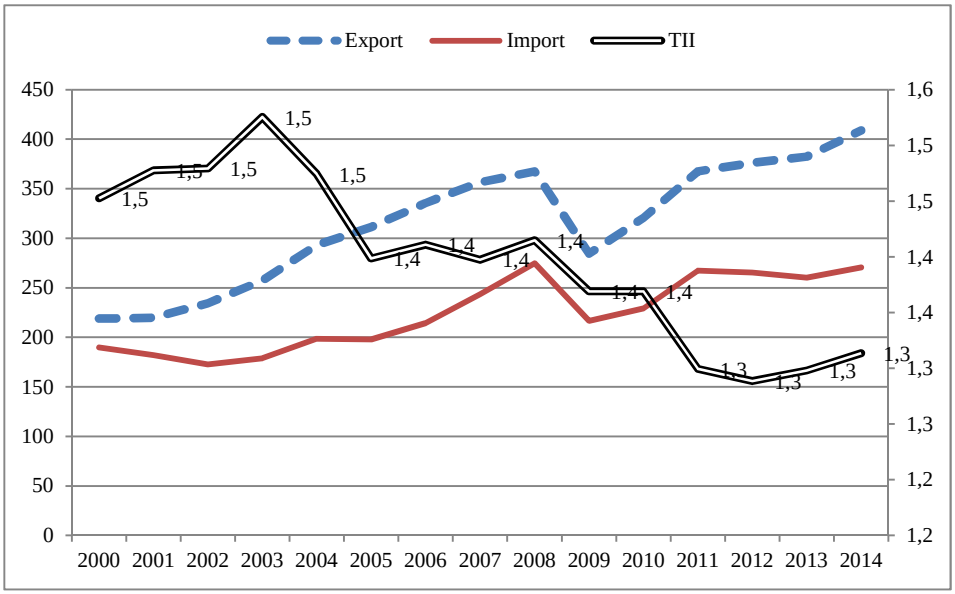
4. Empirical Findings

In this paper we have calculated all measures of comparative advantage and trade intensity presented in section 2. Additionally, we have employed a regression model, which results will be presented below.

Mutual trade between the EU and USA, in nominal term, has increasing trend with trade surplus in favoured of the EU. So, the trade between the mentioned partners is characterised as a long run stabilized, at least in the examined period. Thus, the US market is an important for the EU´s export.

F i g u r e 4

Mutual Trade and Trade Intensity between EU and USA



Note: TII – Trade intensity index (see equation No. 1).

Source: Author´s calculations based on UN Comtrade Database (2016).

Based on the results of TII (see Figure 4), we found that the mutual trade between the EU and USA, indicates that the actual bilateral trade inflows of EU and USA are more intensive than the world average level, since the value of TII is above 1. But the value of TII during the examined period raises the question mark around the decreasing trend, when it declined from 1.5 in 2004 to 1.3 in the last four years of the examined period. Following the contributions by Balassa, the present empirical analysis is based on the measurement of RCA. Since we are interested in the competitiveness of EU in the world markets, we calculated an index of RCA presented in section 2 as the comparator both on global and bilateral levels.

On the global level, the global competitiveness of the EU and USA are compared assuming that both the EU and USA export to and import from the world. On the bilateral level, however, trade between the EU and USA are taken into account only.

Table 2

RCA Indices and International Trade Specialization of the EU

Taxonomy groups	SITC code	RCA			RCA_3			RC			RSCA		
		2000	2007	2014	2000	2007	2014	2000	2007	2014	2000	2007	2014
Marketing-driven industry	00	0.853506	0.692908	0.870866	0.431594	0.41375	0.760146	0.704556	0.909118	2.062485	–0.07904	–0.1814	–0.06902
	01	0.718938	0.480207	0.591541	0.269783	–0.05723	0.165646	0.470407	–0.11259	0.328538	–0.16351	–0.35116	–0.25664
	02	1.409414	1.07691	1.176103	1.196465	0.95785	1.088472	1.889879	2.202229	2.596827	0.169923	0.037031	0.080926
	03	0.269443	0.323229	0.312103	–1.0535	–1.30905	–1.35531	–1.59125	–1.61937	–1.6757	–0.57549	–0.51145	–0.52427
	04	0.910711	0.646706	0.840396	0.63447	0.214406	0.429442	1.192954	0.402771	0.715392	–0.04673	–0.21455	–0.08672
	05	0.467435	0.521941	0.525375	–0.70465	–0.70776	–0.64245	–0.91928	–0.85697	–0.79879	–0.36292	–0.31411	–0.31115
	06	1.154965	0.545401	0.509441	0.439096	–0.08132	–0.14425	0.478328	–0.13899	–0.24931	0.071911	–0.29416	–0.32499
	07	0.620222	0.72216	0.727298	–1.08087	–0.83664	–0.91495	–1.00895	–0.76943	–0.81449	–0.2344	–0.16133	–0.15788
	08	0.50548	0.537993	0.561293	–1.1288	–0.9385	–0.77488	–1.17345	–1.00958	–0.86732	–0.32848	–0.3004	–0.28099
	09	1.45203	1.532901	1.551453	1.064927	1.165266	1.142328	1.322027	1.427827	1.332927	0.184349	0.210392	0.216133
	11	2.525121	2.428815	2.461671	1.998228	1.863453	1.92988	1.567047	1.457692	1.532344	0.432644	0.416708	0.422244
	12	0.781836	0.854913	0.929998	–0.10358	0.23619	0.262207	–0.12441	0.323342	0.331207	–0.12244	–0.07822	–0.03627
	22	0.139843	0.136254	0.098158	–1.68793	–1.16283	–0.86695	–2.57033	–2.2549	–2.28567	–0.75463	–0.76017	–0.82123
	29	1.012985	1.121322	0.976359	–0.02804	0.11351	–0.08989	–0.0273	0.106727	–0.08807	0.006451	0.057192	–0.01196
	42	0.952524	0.438316	0.490686	0.068275	–0.60899	–0.583	0.074376	–0.87103	–0.78305	–0.02432	–0.39052	–0.34166
	43	0.691582	0.402764	0.369109	–0.05938	–0.26803	–0.8456	–0.08238	–0.51011	–1.19117	–0.18233	–0.42576	–0.4608
	55	1.736016	1.798316	1.753159	1.190225	1.297032	1.216061	1.157113	1.277432	1.182995	0.26901	0.285285	0.273562
	83	1.14486	1.316063	1.276824	–0.19272	–0.16214	–0.16352	–0.15558	–0.11619	–0.1205	0.067538	0.136466	0.121584
	85	0.901276	0.718994	0.614311	–0.09007	–0.64271	–0.83573	–0.09526	–0.63864	–0.85885	–0.05193	–0.16347	–0.23892
	89	1.061523	1.012677	0.900643	0.063041	–0.07234	–0.18762	0.061224	–0.069	–0.18923	0.029843	0.006299	–0.05228
MDI	**Average**	**0.986603**	**0.885589**	**0.897891**	**0.061329**	**–0.0293**	**–0.0205**	**0.058486**	**–0.04298**	**0.008029**	**–0.08473**	**–0.14987**	**–0.14302**
Capital-intesive industry	23	0.396762	0.42948	0.588623	–0.639	–0.66723	–0.4158	–0.95956	–0.9375	–0.53438	–0.43188	–0.39911	–0.25895
	25	0.339348	0.642302	0.722437	–1.16579	–0.49512	–0.21152	–1.48961	–0.57146	–0.2568	–0.49326	–0.2178	–0.16115
	26	0.509191	0.575513	0.683234	–0.66631	–0.19972	–0.0621	–0.83663	–0.2979	–0.087	–0.32521	–0.26943	–0.18819
	28	0.484538	0.49911	0.432558	–1.06093	–0.60165	–0.39878	–1.15989	–0.79093	–0.65333	–0.34722	–0.33412	–0.3961
	32	0.060568	0.083529	0.072561	–1.71706	–1.67312	–1.14383	–3.37927	–3.04597	–2.81921	–0.88578	–0.84582	–0.8647
	33	0.368957	0.442432	0.522852	–1.13247	–1.06638	–1.02939	–1.40349	–1.22679	–1.08816	–0.46097	–0.38655	–0.31332
	34	0.083829	0.053216	0.105547	–1.73933	–2.08177	–1.18003	–3.07955	–3.69186	–2.4998	–0.84531	–0.89895	–0.80906
	51	1.601873	1.196277	1.126268	0.811568	0.258877	0.16279	0.70651	0.243859	0.156115	0.231323	0.089368	0.059385
	52	0.933536	1.162414	0.937696	0.036993	–0.05393	–0.21084	0.040433	–0.04535	–0.20281	–0.03437	0.075108	–0.03215
	56	0.516042	0.564913	0.433584	–0.0826	0.037666	–0.20586	–0.14847	0.069002	–0.38851	–0.31922	–0.27803	–0.39511
	57	0.695119	0.766396	0.862585	0.262743	0.325218	0.407535	0.474788	0.55225	0.639525	–0.17986	–0.13225	–0.07378

	64	1.061512	1.225124	1.110625	0.644208	0.792345	0.681181	0.933634	1.040571	0.950187	0.029838	0.101174	0.052413
	67	0.914198	0.840469	0.805497	0.381189	7.76E–05	0.149103	0.53951	9.23E-05	0.204699	–0.04482	–0.08668	–0.10773
	68	0.681574	0.610419	0.696762	–0.52236	–0.54954	–0.34951	–0.56894	–0.64199	–0.40655	–0.18936	–0.24191	–0.17872
	69	1.012978	1.082117	1.072791	0.272179	0.232117	0.158047	0.31292	0.241438	0.159375	0.006447	0.039439	0.035117
	96	0.381953	4.015195	2.40807	0.290948	3.022783	–1.53221	1.434376	1.397703	–0.49243	–0.44723	0.601212	0.413158
	97	0.963666	0.583718	1.20703	–0.99173	–1.34545	0.393527	–0.7076	–1.19542	0.394568	–0.0185	–0.26285	0.093805
CII	**Average**	**0.647391**	**0.868978**	**0.811101**	**–0.41281**	**–0.23911**	**–0.28163**	**–0.54652**	**–0.52354**	**–0.40732**	**–0.27973**	**–0.20278**	**–0.18383**
Labour-intensive industry	21	1.118733	1.301906	1.730902	–0.00056	0.5879	1.049309	–0.0005	0.600693	0.931965	0.056039	0.131155	0.267641
	24	0.665385	0.732179	0.88495	–0.30156	–0.29147	0.171576	–0.37378	–0.33511	0.215525	–0.20092	–0.15462	–0.06104
	61	1.326285	1.120851	1.103172	0.262057	–0.03561	–0.19713	0.220132	–0.03128	–0.1644	0.14026	0.056982	0.049055
	63	0.819059	0.954825	0.929033	0.01738	0.061792	0.103092	0.021448	0.066904	0.117621	–0.09947	–0.02311	–0.03679
	65	0.744505	0.7357	0.566348	0.009475	–0.12379	–0.45108	0.012809	–0.15552	–0.58583	–0.14646	–0.15227	–0.27686
	77	0.750654	0.796894	0.670192	–0.13096	0.149743	0.0323	–0.16081	0.208142	0.049395	–0.14243	–0.11303	–0.19747
	81	1.068613	1.260555	0.873023	0.338407	0.244815	–0.39439	0.38079	0.215935	–0.37277	0.033169	0.115262	–0.06779
	82	1.133909	0.972715	0.897385	0.455544	0.012321	–0.03879	0.513741	0.012748	–0.04232	0.062753	–0.01383	–0.05408
	84	0.520288	0.52435	0.535014	–0.82138	–1.16051	–1.39354	–0.94729	–1.16728	–1.28223	–0.31554	–0.31203	–0.30292
LII	**Average**	**0.90527**	**0.933331**	**0.910002**	**–0.01907**	**–0.06165**	**–0.1243**	**–0.03705**	**–0.06497**	**–0.12589**	**–0.06807**	**–0.05172**	**–0.07558**
Mainstream manufacturing	58	0.970676	1.018759	0.956262	0.40911	0.490652	0.346916	0.547264	0.657042	0.450646	–0.01488	0.009292	–0.02236
	62	0.856119	0.810213	0.864219	0.210698	0.036687	0.084744	0.282506	0.046338	0.103206	–0.07752	–0.10484	–0.07284
	66	1.833232	1.450807	1.080291	0.608268	0.368025	0.213319	0.403169	0.292586	0.21998	0.294092	0.183942	0.038596
	71	1.686594	1.680003	1.932653	0.46157	0.739296	0.806827	0.31975	0.579919	0.540377	0.255563	0.253732	0.318024
	72	1.868886	2.010638	1.918002	1.228399	1.450366	1.354841	1.07087	1.277786	1.225473	0.302865	0.335689	0.3146
	73	1.3586	1.801235	1.876025	0.324306	0.959633	1.059328	0.272735	0.760921	0.831643	0.152039	0.286029	0.304596
	74	1.522873	1.724266	1.722342	0.759279	1.044916	1.034585	0.690318	0.93142	0.918006	0.207253	0.265857	0.265338
	75	0.548615	0.525283	0.417814	–0.64713	–0.71029	–0.85301	–0.77913	–0.85535	–1.11238	–0.29148	–0.31123	–0.41062
	76	0.945861	0.688226	0.414195	–0.04893	–0.49464	–0.55016	–0.05044	–0.54157	–0.84512	–0.02782	–0.18468	–0.41423
	78	0.974101	1.063559	1.354534	0.535402	0.571364	0.916006	0.797702	0.7705	1.12779	–0.01312	0.030801	0.150575
	79	2.119081	1.918168	2.162857	0.101949	0.060229	0.772045	0.049306	0.031903	0.441542	0.358785	0.314638	0.36766
MSM	**Average**	**1.334967**	**1.33556**	**1.33629**	**0.358447**	**0.410568**	**0.471405**	**0.327641**	**0.359226**	**0.354651**	**0.104162**	**0.098112**	**0.076304**
Technology--driven industry	27	0.868459	0.870946	0.812526	–0.41229	–0.27808	–0.06946	–0.38848	–0.27709	–0.08203	–0.0704	–0.06898	–0.10343
	53	1.334492	1.477058	1.470156	0.707651	0.945949	0.928157	0.755613	1.022841	0.997859	0.143283	0.192591	0.190335
	54	2.303716	2.126267	2.22507	1.247782	1.220924	1.026956	0.780098	0.853809	0.61904	0.394621	0.360259	0.379858
	59	1.414296	1.345293	1.319574	0.70257	0.710275	0.713576	0.686694	0.750713	0.778188	0.171601	0.147228	0.137773
	87	1.408954	1.288582	1.318929	0.189429	0.434289	0.36528	0.144386	0.411024	0.324279	0.169764	0.126096	0.137533
	88	0.956527	0.840308	0.801325	–0.19327	–0.15451	–0.26399	–0.18403	–0.16879	–0.28476	–0.02222	–0.08677	–0.11029
TDI	**Average**	**1.381074**	**1.324742**	**1.324597**	**0.373645**	**0.479808**	**0.450086**	**0.299046**	**0.432085**	**0.392096**	**0.131108**	**0.111737**	**0.105295**

Source: Author´s calculations.

Table 3

RCA Indices and International Trade Specialization of the USA

Taxonomy groups	SITC code	RCA			RCA_3			RC			RSCA		
		2000	2007	2014	2000	2007	2014	2000	2007	2014	2000	2007	2014
Marketing-driven industry	00	0.796	0.561	0.463	–0.314	–0.834	–0.199	–0.333	–0.911	–1.012	–0.114	–0.281	–0.367
	01	1.387	1.160	1.423	0.920	0.729	0.048	1.088	0.988	1.020	0.162	0.074	0.175
	02	0.240	0.478	0.726	0.044	0.286	0.177	0.203	0.910	1.464	–0.613	–0.353	–0.159
	03	0.483	0.591	0.474	–0.477	–0.469	0.090	–0.686	–0.584	–0.944	–0.348	–0.257	–0.356
	04	1.838	2.564	1.700	1.554	2.215	0.649	1.867	1.995	1.315	0.295	0.439	0.259
	05	0.978	1.074	1.230	0.238	0.215	0.069	0.279	0.223	0.211	–0.011	0.036	0.103
	06	0.404	0.549	0.544	–0.186	–0.067	0.108	–0.379	–0.115	–0.381	–0.424	–0.291	–0.296
	07	0.315	0.381	0.410	–0.589	–0.526	0.073	–1.054	–0.867	–0.896	–0.521	–0.448	–0.418
	08	1.655	1.616	1.736	1.494	1.442	0.001	2.332	2.227	1.806	0.247	0.236	0.269
	09	1.284	1.250	1.214	0.936	0.785	0.015	1.306	0.990	0.970	0.124	0.111	0.097
	11	0.370	0.463	0.591	–0.903	–1.055	0.033	–1.235	–1.188	–0.961	–0.459	–0.367	–0.257
	12	2.009	0.929	0.455	1.712	0.605	0.210	1.912	1.054	0.183	0.335	–0.037	–0.374
	22	3.332	3.825	3.464	3.209	3.700	–0.413	3.300	3.423	2.884	0.538	0.585	0.552
	29	0.720	0.879	0.762	–0.068	0.047	0.118	–0.091	0.055	–0.296	–0.163	–0.064	–0.135
	42	0.459	0.408	0.265	0.028	–0.055	0.001	0.062	–0.126	–0.769	–0.371	–0.421	–0.582
	43	0.624	0.600	0.565	0.322	0.318	–0.116	0.726	0.755	0.641	–0.231	–0.250	–0.278
	55	1.028	1.175	1.153	0.577	0.554	–0.016	0.824	0.638	0.515	0.014	0.081	0.071
	83	0.210	0.240	0.210	–1.064	–1.222	–0.074	–1.804	–1.809	–1.941	–0.653	–0.614	–0.653
	85	0.153	0.126	0.117	–1.451	–1.472	0.060	–2.351	–2.541	–2.622	–0.735	–0.776	–0.791
	89	1.244	1.420	1.156	–0.028	0.018	0.080	–0.022	0.013	–0.164	0.109	0.174	0.072
MDI	**Average**	**0.976**	**1.015**	**0.933**	**0.298**	**0.261**	**0.046**	**0.297**	**0.256**	**0.051**	**–0.141**	**–0.121**	**–0.153**
Capital-intensive industry	23	1.183	1.144	0.966	0.416	0.429	–0.229	0.434	0.471	0.302	0.084	0.067	–0.017
	25	1.586	2.219	2.189	0.910	1.555	–0.299	0.853	1.206	1.359	0.227	0.379	0.373
	26	1.294	2.374	1.896	1.141	2.092	0.197	2.137	2.129	1.963	0.128	0.407	0.309
	28	0.725	1.243	0.881	0.364	1.038	0.135	0.698	1.799	1.554	–0.159	0.109	–0.063
	32	0.907	0.825	0.912	0.706	0.581	–0.010	1.509	1.216	2.468	–0.049	–0.096	–0.046
	33	0.150	0.262	0.777	–1.021	–1.157	–0.086	–2.058	–1.688	–0.307	–0.740	–0.584	–0.126
	34	0.132	0.245	0.479	–0.719	–0.746	–0.297	–1.865	–1.398	0.380	–0.767	–0.607	–0.353
	51	1.157	1.277	1.206	0.156	0.419	0.186	0.145	0.398	0.258	0.073	0.122	0.093
	52	1.344	1.613	1.377	0.503	0.540	–0.301	0.468	0.408	0.414	0.147	0.234	0.159
	56	NA	NA	0.903	–0.556	–0.814	0.053			–0.031			–0.051
	57	1.219	1.424	1.394	0.860	1.075	–0.034	1.222	1.407	1.292	0.099	0.175	0.164
	64	0.916	1.003	1.010	0.091	0.200	–0.002	0.104	0.223	0.291	–0.044	0.002	0.005

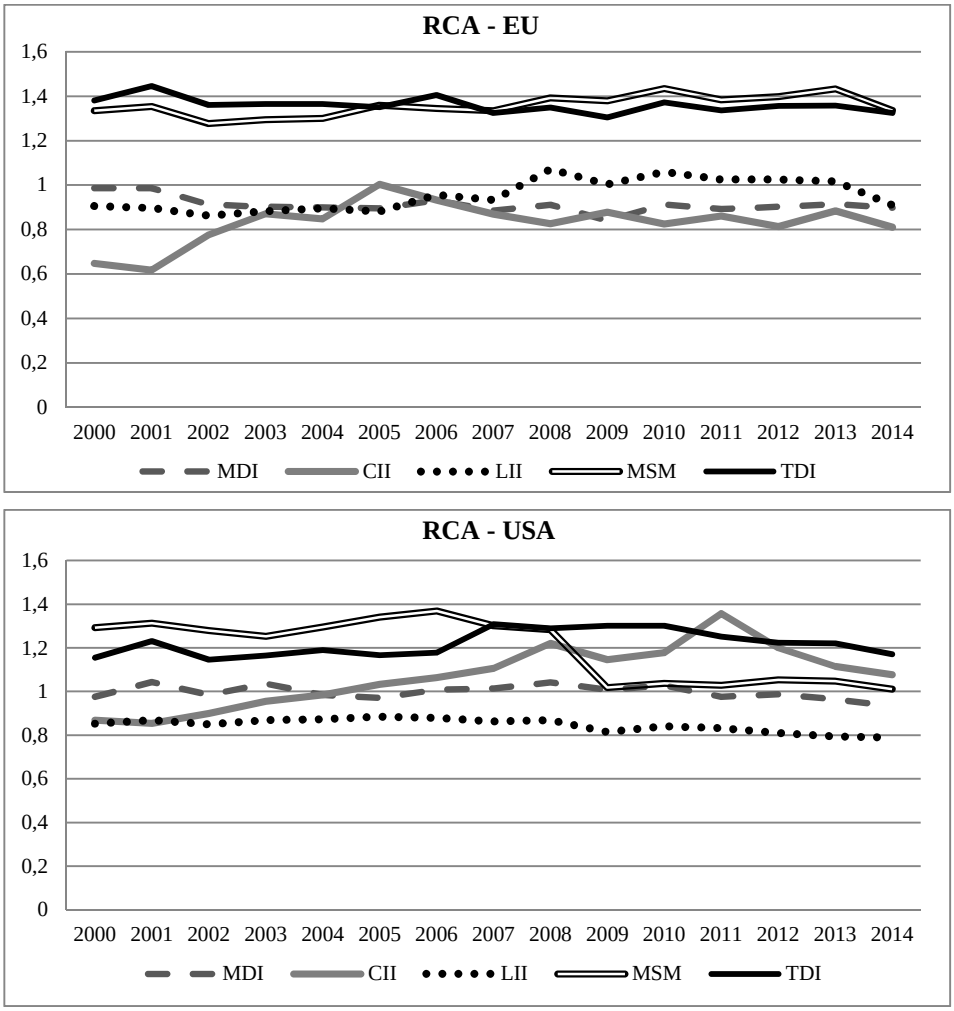
	67	0.367	0.377	0.479	–0.306	–0.174	–0.173	–0.607	–0.380	–0.548	–0.463	–0.452	–0.352
	68	0.596	0.566	0.611	–0.318	–0.334	–0.061	–0.428	–0.464	–0.324	–0.253	–0.277	–0.242
	69	1.040	0.856	0.856	0.105	–0.132	–0.004	0.106	–0.144	–0.154	0.020	–0.078	–0.078
	96	0.052	1.213	1.290	–4.799	0.243	–0.343	–4.532	0.223	1.737	–0.901	0.096	0.127
	97	2.112	2.173		1.604	1.742	–1.979	1.424	1.617		0.357	0.370	
CII	**Average**	**0.869**	**1.107**	**1.077**	**–0.051**	**0.386**	**–0.191**	**–0.024**	**0.439**	**0.666**	**–0.140**	**–0.008**	**–0.006**
Labour-intensive industry	21	2.121	2.921	2.394	1.977	2.791	0.208	2.692	3.112	2.613	0.359	0.490	0.411
	24	1.012	0.898	1.248	–0.055	–0.018	–0.111	–0.053	–0.020	0.533	0.006	–0.054	0.110
	61	0.478	0.527	0.555	0.064	0.191	0.115	0.144	0.450	0.504	–0.353	–0.310	–0.286
	63	0.498	0.429	0.380	–0.748	–0.826	0.057	–0.917	–1.073	–1.136	–0.335	–0.400	–0.449
	65	0.541	0.588	0.505	–0.006	–0.166	0.094	–0.011	–0.249	–0.527	–0.298	–0.259	–0.329
	77	1.405	1.118	0.848	0.530	0.429	0.094	0.474	0.483	0.094	0.168	0.056	–0.082
	81	0.564	0.572	0.512	–0.712	–0.659	–0.005	–0.817	–0.766	–1.003	–0.279	–0.272	–0.323
	82	0.694	0.570	0.518	–1.014	–1.338	0.094	–0.900	–1.209	–1.408	–0.180	–0.274	–0.318
	84	0.354	0.139	0.147	–1.311	–1.551	0.035	–1.548	–2.498	–2.410	–0.477	–0.756	–0.744
LII	**Average**	**0.852**	**0.862**	**0.790**	**–0.142**	**–0.127**	**0.065**	**–0.104**	**–0.197**	**–0.304**	**–0.154**	**–0.198**	**–0.223**
Mainstream manufacturing	58	1.210	1.104	1.116	0.658	0.583	–0.015	0.784	0.751	0.644	0.095	0.049	0.055
	62	1.011	0.855	0.873	0.084	–0.144	0.027	0.086	–0.155	–0.313	0.005	–0.078	–0.068
	66	0.708	1.016	1.123	–0.385	–0.140	0.027	–0.435	–0.129	0.065	–0.171	0.008	0.058
	71	1.769	1.883	1.194	0.655	0.787	0.611	0.462	0.541	–0.024	0.278	0.306	0.088
	72	1.544	1.590	1.400	0.802	0.882	–0.012	0.733	0.808	0.427	0.214	0.228	0.167
	73	1.289	0.880	0.852	0.324	0.187	–0.093	0.289	0.239	–0.034	0.126	–0.064	–0.080
	74	1.270	1.153	1.259	0.438	0.279	–0.018	0.423	0.277	0.175	0.119	0.071	0.115
	75	1.240	0.974	0.923	–0.022	–0.377	0.249	–0.017	–0.327	–0.510	0.107	–0.013	–0.040
	76	0.899	0.740	0.742	–0.354	–0.653	0.198	–0.332	–0.633	–0.632	–0.053	–0.149	–0.148
	78	0.889	1.031	1.067	–0.656	–0.250	0.095	–0.553	–0.217	–0.344	–0.059	0.015	0.032
	79	2.389	3.081	0.565	1.376	2.258	2.096	0.858	1.320	–0.462	0.410	0.510	–0.278
MSM	**Average**	**1.292**	**1.301**	**1.010**	**0.265**	**0.310**	**0.288**	**0.209**	**0.225**	**–0.092**	**0.097**	**0.080**	**–0.009**
Technology--driven industry	27	1.100	0.998	0.910	0.612	0.525	–0.076	0.812	0.747	0.481	0.048	–0.001	–0.047
	53	0.998	1.107	1.165	0.583	0.743	–0.031	0.878	1.113	1.034	–0.001	0.051	0.076
	54	1.007	1.060	0.999	0.311	0.074	–0.054	0.370	0.073	–0.056	0.003	0.029	0.000
	59	1.587	1.746	1.612	1.132	1.231	0.043	1.250	1.221	1.085	0.227	0.272	0.234
	87	2.238	1.953	1.653	1.282	1.100	0.113	0.850	0.829	0.519	0.382	0.323	0.246
	88	NA	0.988	0.686		0.135	–0.046		0.147	–0.188		–0.006	–0.186
TDI	**Average**	**1.155**	**1.309**	**1.171**	**0.784**	**0.635**	**–0.009**	**0.832**	**0.688**	**0.479**	**0.132**	**0.111**	**0.054**

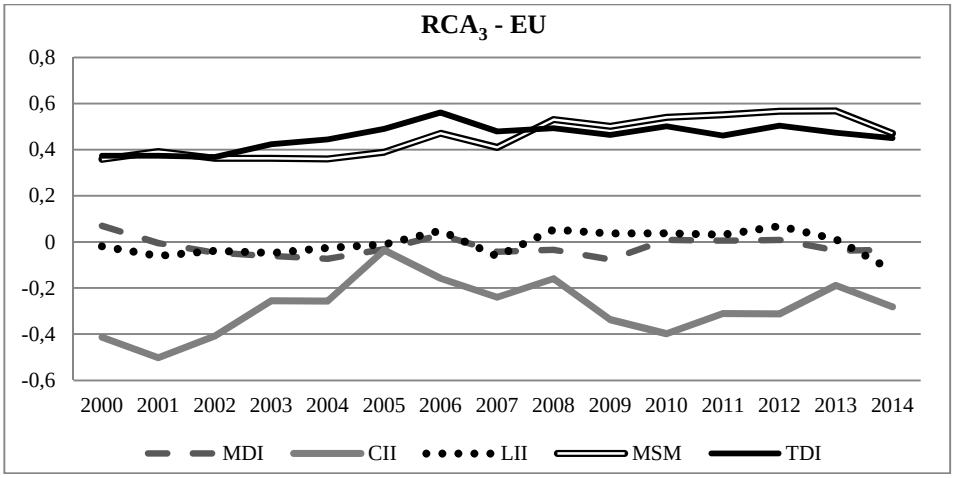
Source: Author´s calculations.

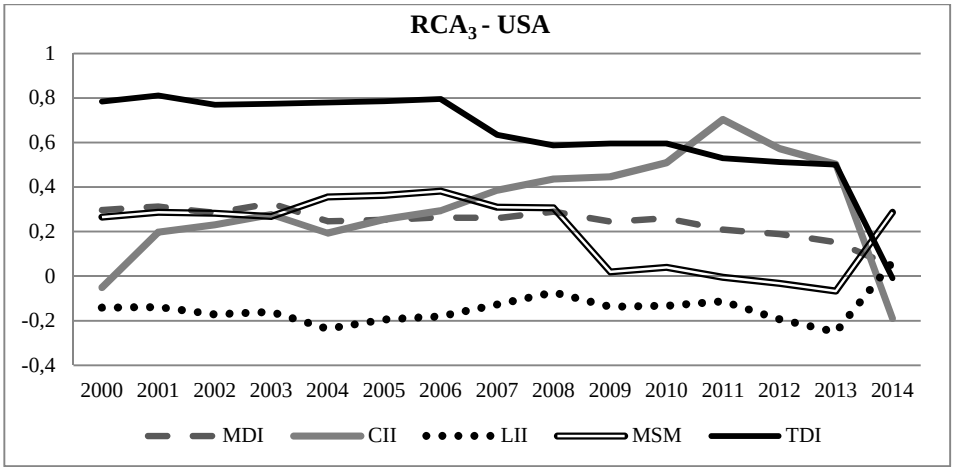
The previous two tables (Tables 2 and 3) illustrate RCA index of the EU and USA on the global level and for selected years among the period 2000 – 2014. However, in those tables are presented only the product groups in which the both trade partners have at least in one of the selected years a comparative advantage – the index is more than or equal to 1.

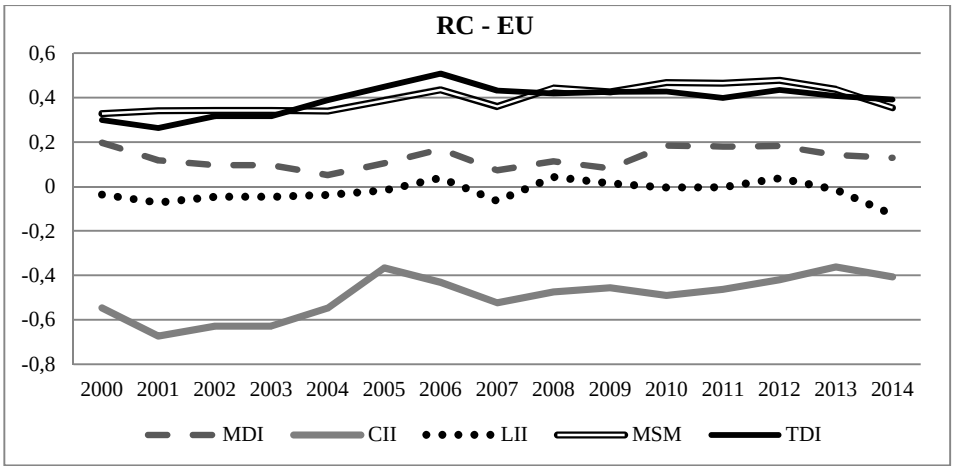
Figure 5

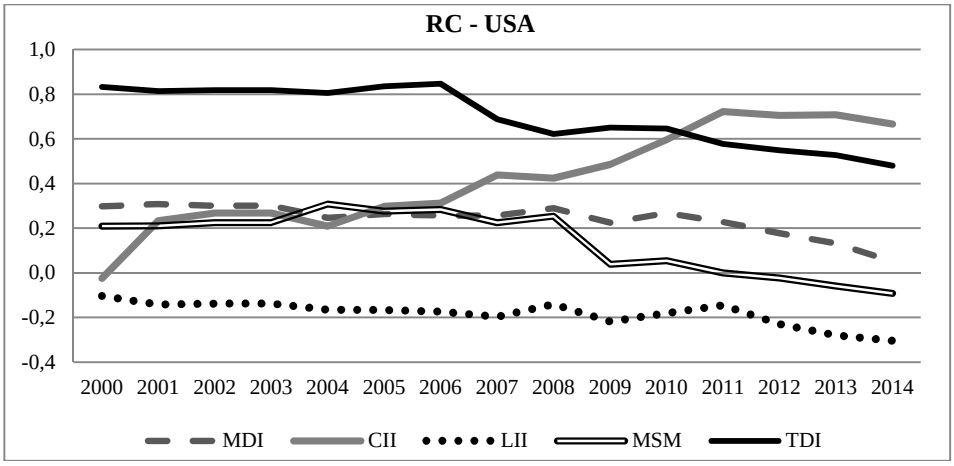
RCA Indices of the EU in Comparison with to the USA, in the Period 2000 – 2014

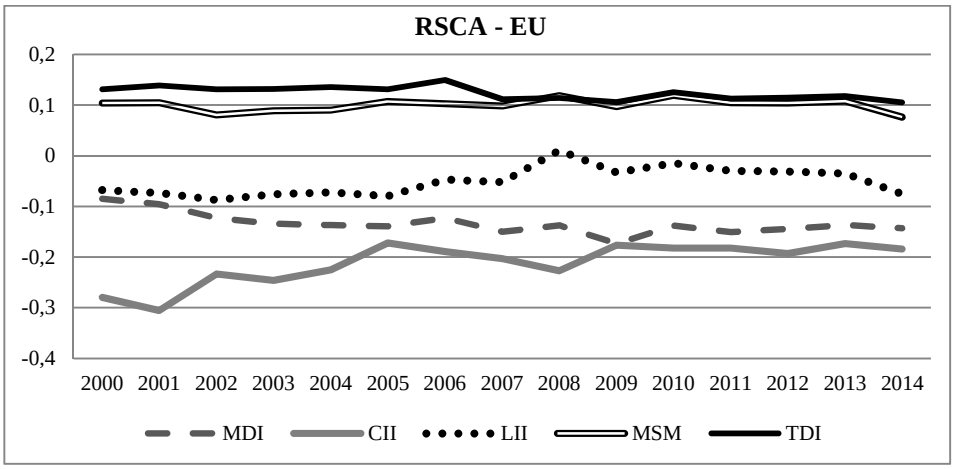


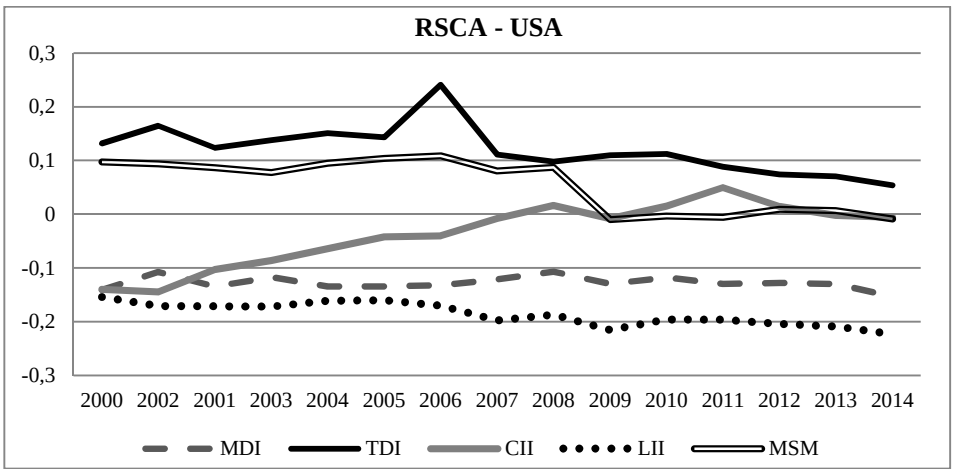

RCA3 - EU
0,8
0,6
0,4
0,2
0
-0,2
-0,4
-0,6
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
MDI
CII
LII
MSM
TDI


RCA3 - USA
1
0,8
0,6
0,4
0,2
0
-0,2
-0,4
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
MDI
CII
LII
MSM
TDI


RC - EU
0,6
0,4
0,2
0
-0,2
-0,4
-0,6
-0,8
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
MDI
CII
LII
MSM
TDI







Note: RCA values range within the interval (0, ∞), RCA_3, *RC* and RSCA values range from –1 to +1.
MDI – refers to Marketing driven industry; TDI – refers to Technology driven industry; CII – refers to Capital intensive industry; LII – refers to Labour intensive industry; MSM – refers to Mainstream manufacturing.

Source: Author´s calculations.

Looking at the above figures, which are as results of computed equations, the EU-28 has more or less a stable comparative advantage during the examined period, at least in two taxonomy groups (technology driven industry and mainstream manufacturing). The EU has reached a comparative advantage and international specialization as well as revealed competitiveness, based on three out of four measures, in two other groups of commodities or industries (Labour intensive industry and marketing driven industry) with some turbulences, particularly in the periods 2000 – 2003 and 2012 – 2014. The industry which the EU has a comparative disadvantage in is the capital intensive industry. While the USA, based on the results of Balassa's index RCA, has recorded a comparative advantage in three industries or groups of commodities such as technology driven industry, mainstream manufacturing and the capital intensive industry. But, based on the other examined measures(RCA_3, RC and RSCA), has reached a comparative advantage as well as revealed competitiveness with some trend fluctuations only in two sectors (capital intensive industry and technology driven industry). However, in comparison to the EU, the later mentioned group of commodities is the most competitive industry of USA in the examined period.

T a b l e 4

Results of Regression Models of Specialization (for every model n = 66)

Model No.	$RSCA^{t2}$	$RSCA^{t1}$	**EU**		**USA**	
			β	β/R	β	β/R
1	2001	2000	1.047***	1.06	0.976***	1.007
2	2002	2001	0.849***	0.95	0.923***	0.972
3	2003	2002	1.050***	1.07	0.993***	1.003
4	2004	2003	0.958***	0.97	0.961***	0.981
5	2005	2004	0.944***	1.00	0.999***	1.009
6	2006	2005	0.962***	1.01	0.795***	1.169
7	2007	2006	0.987***	1.01	0.711***	0.827
8	2008	2007	1.004***	1.05	0.831***	0.923
9	2009	2008	0.954***	0.98	0.903***	1.003
10	2010	2009	0.968***	1.00	0.973***	0.992
11	2011	2010	1.000***	1.02	1.018***	1.050
12	2012	2011	0.956***	0.99	0.957***	0.976
13	2013	2012	0.973***	1.00	0.951***	0.961
14	2014	2013	0.946***	0.96	0.976***	1.049
15	2007	2000	0.853***	1.04	0.766***	0.923
16	2014	2007	0.933***	0.99	0.619***	0.938
17	2014	2000	0.840***	1.02	0.443***	0.852

*** – statistically significantly different from zero at the 1% level.

Source: Author´s calculations.

After measuring the trade specialization as well as revealed competitiveness by many different indices, we tried to identify the trend of international trade specialization and comparative advantage of the examined trade partners. This purpose has been reached by using the econometric model (see equation 7). The

important results of which are presented in the tables below. The econometric model is established based on the adjusted data of RSCA and tested for normality, autocorrelation and heteroskedascity of residuals.

Based on the results of the econometric models (see Table 4), all 17 established models for the both EU and USA are statistically significant at the 1% level. The interesting results are the estimated coefficients *RSCA* or β coefficient for the EU, where we found that, based on y-on-y trends and trends between selected periods, the EU reached not only higher coefficients but also more cases of values (when $\beta > 1$) than the USA (see table 4), which means that the international specialisation pattern of the EU has been unchanged almost in all examined periods, while in case of the USA the specialisation pattern signed a high degree of turbulence at least in one period (2000 – 2014) and low degree of turbulence in two periods (2000 – 2007 and 2007 – 2014). The results of regression models show also that, while the specialisation pattern of the EU has gone up in 11 out of 17 examined periods, the specialisation pattern of the USA has gone up in 7 out of 17 examined periods.

T a b l e 5

Testing of Models for EU

Test		Models		
		2007 – 2000	2014 – 2007	2014 – 2000
Normality of residuals	p-value	0.000000	0.000670	0.000000
Heteroskedascity of residuals	p-value	0.177800	0.838900	0.200800
Serial correlation of residuals	p-value	0.948600	0.065200	0.065200
Autocorrelation of residuals	DW statistics	1.955166	1.773159	1.476043
Testing of models for USA				
Normality of residuals	p-value	0.000000	0.000000	0.000000
Heteroskedascity of residuals	p-value	0.000600	0.608800	0.888000
Serial correlation of residuals	p-value	0.502800	0.151000	0.605900
Autocorrelation of residuals	DW statistics	1.743059	1.478180	1.587523

Source: Author´s calculations.

Conclusion

In the increasingly global competitive environment, all countries and trade groups are facing the challenge to keep their competitiveness and improve their position in international trade. As a result of the above mentioned environment, many advanced industrial countries have been reached and replaced by other emerging economies in the list of top 10 biggest exporters.

According to our comparative analysis using Balassa's index of revealed comparative advantage we found that, though the EU-28 is the largest trade player in the world, it has, according to the results of RCA index in the global

level, a comparative advantage in smaller group of commodities (32 out of 66 groups of 2-digit SITC commodities) than the USA has reached in the examined period (40 out of 66 groups of 2-digit SITC commodities). However, based on the other three used measures of comparative advantage, we found that the EU-28 has reached a comparative advantage and international specialisation in larger group of commodities than the USA. We found also that, the EU-28 had more or less a stable comparative advantage during the examined period, at least in two taxonomy groups (technology driven industry and mainstream manufacturing), and with some turbulence, particularly in the periods 2000 – 2003 and 2012 – 2014, in two other groups of commodities or industries (Labour intensive industry and marketing driven industry). We found also that the USA, based on the results of Balassa's index RCA, has registered a comparative advantage in three industries or groups of commodities such as technology driven industry, mainstream manufacturing and the capital intensive industry. According to our findings and based on the other examined measures (RCA_3, RC and RSCA), USA has reached a comparative advantage as well as relative trade advantage only in two sectors (capital intensive industry and technology driven industry). However, while the later mentioned group of commodities, with some sign of turbulence, was the most competitive industry of USA, for EU it was the one with a comparative disadvantage.

In addition to that, based on the results of the econometric models, while the international specialisation pattern of the EU has been unchanged almost in all examined periods (in detail see the previous section), the US international trade specialisation pattern recorded a high degree of turbulence at least in one period (2000 – 2014) and low degree of turbulence in two periods (2000 – 2007 and 2007 – 2014). The results of regression models show also that, while the specialisation pattern of the EU has gone up in 11 out of 17 examined periods, the specialisation pattern of the USA has gone up only in 7 out of 17 in the examined periods.

In spite of the acceptable range of analysed set of commodities in this paper (the major studies similar to our paper have used also a 2-digit SITC code), it could be helpful to investigate, using the same methodology but with more detailed analysis and more breakdown SITC up to 5 or 6 SITC codes, whether the results will be different or not. However, our results give a comprehensive feature of international specialisation of the examined trade partners, more than it gives the comparative advantages of examined sectors. As we mentioned above in the second part, many authors considering the RCA as a measure of "revealed" competitive advantage more than a measure of "revealed" comparative advantage, because the trade flows are the results of all the production conditions and business

environment, including the government subsidies, which are not related with the country´s factor endowments. So many positive results of the used measures in both examined trade partners especially within the group of commodities MDI are influenced by different government policies and interventions.

We can say that the results of this comparative analysis in our paper could be a good base among others for assessment the future economic or trade relations between the EU and USA and for the impact assessment of the potential TTIP. The subjects of the future research studies could be for example the assessment of trade and investment barriers between the mentioned trade partners and the consequences of the potential TTIP on the both economies.

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