

Miklos Vasary¹, Laszlo Vasa², Zsolt Baranyai³
ANALYSING COMPETITIVENESS IN AGROTRADE AMONG
VISEGRAD COUNTRIES⁴

For Visegrad joining the European Union in 2004 has resulted in the emergence of multiple kinds of agrotrade possibilities and difficulties. Around the accession's period the liquidation of former customs and other trade barriers led to an increasing trading activity rate, especially after 2004. The progressively growing trading intensity with the old EU members was much stronger in relation to neighbouring countries (for the Visegrad countries) and went through in a shorter time. The process has enabled the extension of trade turnover due to the free flow of agrigoods at the common market which was set up and enhanced, following the integration. The objective of the current paper is to review the changes of trading processes and analyse the competitiveness within the examined country group following the EU, the so called, "Eastern enlargement".

Keywords: comparative advantages, export-import ratio, Balassa-index, Herfindahl-Hirschman-index.

Міклош Васарі, Лашло Васа, Жолт Бараняї
ОЦІНЮВАННЯ КОНКУРЕНТОСПРОМОЖНОСТІ АГРОТОРГІВЛІ
"ВИШЕГРАДСЬКОЇ ЧЕТВІРКИ"

У статті показано, що для "Вишеградської четвірки" вступ до ЄС у 2004 р. призвів до появи багатьох нових як можливостей, так і проблем у галузі агроторівлі. Зняття митних зборів та низки інших торговельних бар'єрів досприяло підвищенню торговельної активності. При цьому торгівля інтенсифікувалась переважно зі "старими" членами ЄС, а не з сусідніми країнами. Збільшення торговельного обороту було пов'язано в першу чергу з формування спільного ринку. Зміни в торговельних процесах у контексті так званого "розширення на схід" призвели до відповідних змін конкурентоспроможності агровиробників країн "Вишеградської четвірки", що і проаналізовано у даній статті.

Ключові слова: конкурентні переваги, баланс імпорту-експорту, індекс Баласса, індекс Херфіндаля-Хіршмана.

Форм. 7. Рис. 3. Табл. 3. Літ. 25.

Миклош Васари, Лашло Васа, Жолт Бараняи
ОЦЕНКА КОНКУРЕНТОСПОСОБНОСТИ АГРОТОРГОВЛИ
"ВЫШЕГРАДСКОЙ ЧЕТВЁРКИ"

В статье показано, что для "Вышеградской четвёрки" вступление в ЕС в 2004 г. повлекло за собой множество новых как возможностей, так и трудностей в агроторговле. Отмена таможенных сборов и ряда других торговых барьеров привели к повышению торговой активности. При этом торговля интенсифицировалась преимущественно со "старыми" членами ЕС, а не с соседями. Увеличение торгового оборота было связано в первую очередь с формированием единого рынка. Изменения в торговых процессах в контексте так называемого "расширения на восток" привели к соответствующим изменениям конкурентоспособности агропроизводителей стран "Вышеградской четвёрки", что и проанализировано в данной статье.

Ключевые слова: конкурентные преимущества, баланс экспорта-импорта, индекс Баласса, индекс Херфиндаля-Хиршмана.

¹ Faculty of Economics and Social Sciences, Szent Istvan University, Hungary.

² Szent Istvan University, Hungary.

³ Szent Istvan University, Hungary.

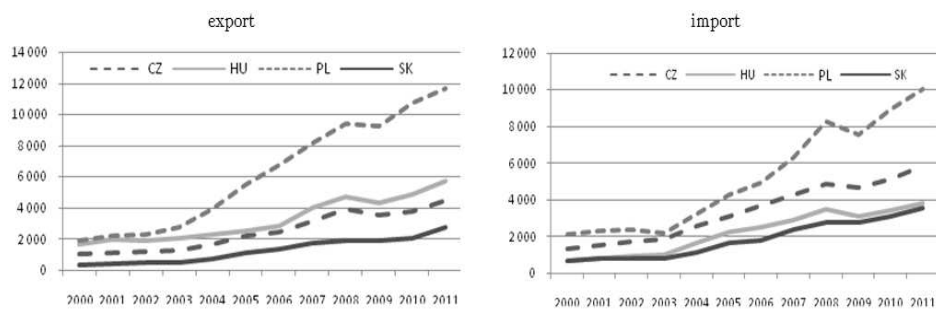
⁴ The study was made with the support of TAMOP-4.2.1.B-11/2/KMR-2011-0003 research project.

Introduction. General agrotrade effects

The agrotrade of Visegrad countries was basically affected by the two main events in the early 2000s. On the one hand, the favours implemented in the frames of the European Treaty were concluded with the European Union before the accession and the updated versions of favours have led to considerable decrease of barriers in bilateral trade with the old member states of the European Union (EU-15). On the other hand, the EU membership has enabled the trade among the new member states to implement free trade without restrictions, according to the principles of common internal market.

As for the analysis of other related topics, many authors referred to the development of trade relations. Out of these, for example, the works by Ferto (2003), Ferto et al. (2005) or Jambor (2011) should be mentioned. The given publications examined the features of general competitiveness in relation to Hungary and the EU-15. Recently, among others, Bartosova et al. (2008), Bojniec et al. (2009), Savtos et al. (2010), Rajcaniova (2012), Bielik et al. (2012), and Qineti et al. (2012) analysed the peculiarities of trading activities of new member states, with special regard to Visegrad countries. As for Hungarian authors, Jambor (2011) provided a detailed review of these issues. Other analyses could also be founded in Hungarian references but they refer basically to individual products traded within the V4.

According to the EUROSTAT statistics, the trade turnover in the EU-15 has clearly increased after the accession (EUROSTAT, 2012), see Figure 1. The countries which integrated after the enlargement in 2004 had very different conditions concerning the role of agriculture in their national economies: its level, the volume of agricultural subsidies as well as in regards to the efficiency and competitiveness of the sector.



Source: Authors' elaboration, based the EUROSTAT, 2012a.

Figure 1. Agricultural export and import turnover between Visegrad countries and the European Union (2000–2011, current prices, mln euro)

Material and methods

The research objective is to reveal the lessons that could be learnt from the example of the Visegrad countries. Basically two reference points can be distinguished. On the one hand, trade in goods between different country groups of the EU, and, on the other hand, special features of Visegrad countries. The data for the research were collected from the EUROSTAT database, in SITC (Standard International Trade Classification) system and covered the period from 2000 to 2011. The double digit distribution of SITC system was applied for data treatment.

It has become clear during the research, that, in general, a lot of difficulties and restrictions can affect the uniformity and reliability of the data due to the characteristics of the database. Out of these, the following should be highlighted:

– Following the EU integration, in case of import, goods coming from the countries out of the EU appear as goods from within the EU, since they cross the EU border and the seat of the importing corporation is in the EU.

– In case of export, entry and exit summary customs declaration should be filled only in case of trade outside the EU, thus the control of actual turnover within the EU is not possible on the basis of customs declaration⁵.

– The series of VAT frauds within the EU has a significant distorting impact, because the effect of fictitious turnovers within the Union is very uncertain in administration and, consequently, in statistics.

– Moreover, the black or illegal trade can be added to the above, because it has a strong impact on some special product groups. Avoiding trade, however, should also be noted here, because it goes legally at the union level, but it does not appear in the statistical reports of individual member states.

A lot of methods, ratios and indices were applied in the frames of the research. The share of member countries in the changes of export market ratio was explored:

$$MR_{E/I} = \frac{\sum_i x_t - \sum_i x_{t-1}}{\sum_j X_t - \sum_j X_{t-1}}, \quad (1)$$

where $MR_{E/I}$, gives the ratio in the market proportion change, x_t , x_{t-1} is the value of the export and import goods of a given country in t and $t-1$ year. X_t , X_{t-1} is the value of the total export and import turnover of a given country in the two periods. The value of the ratio can also be negative, which means that the goods turnover decreases in case of a given country, in the examined relation. The structure of the index allows values above 100% and below -100% , too. It can be due to the temporary features that the value of the denominator is extremely low, thus even a slight change may seem significant. It can distort the interpretation, therefore the swinging values are maximized.

The next index is the export-import balance, which clearly expresses the difference between export and import of a country:

$$B_{E/I} = x_{ij} - m_{ij}, \quad (2)$$

where $B_{E/I}$ gives the sum of balance, x_{ij} is the sum of export value of a given country, and m_{ij} is the sum of the similar values of import.

The third index applied in our research quantifies the export-import ratio. The ratio is the simplest export specification index which correlates the export of the countries to their import:

$$R_{E/I} = \frac{x_{ij}}{m_{ij}}, \quad (3)$$

⁵ It should be noted that the paper which serves to follow the movement of goods is called an accompanying document in the trade of excise goods. It had been used only in internal trade earlier, but following the EU accession, the goods are accompanied with this, too, in case of excise goods trade between member states, because the value added tax and the excise duty can be recovered on the basis of this (EUVONAL, 2012).

where $R_{E/i}$ is the value of index, x_{ij} is the sum of export items, currently the sum of export values of a given country, while m_{ij} gives the sum of similar values of import.

The analysis also includes the calculation of Herfindahl-Hirschman-index (HHI) value of the examined country. In the course of this, the export share of each product group is squared and the values received are summarized. Formally, the index is formed as follows:

$$HHI = \sum_{i=1}^N S_i^2, \quad (4)$$

where S_i is the market share of i product group. Subsequently, the value of the index is between 0 and 1. Higher values indicate higher levels of concentration.

The examination is finished with the index developed by Bela Balassa for measuring comparative advantages. The Formula for the B index is the following:

$$B = \frac{x_{ij} / \sum_i x_{ij}}{\sum_j x_{ij} / \sum_i \sum_j x_{ij}} = \frac{x_{ij} / \sum_j x_{ij}}{\sum_i x_{ij} / \sum_i \sum_j x_{ij}}, \quad (5)$$

where x indicates the export, i is for a product group, j is the examined country, and, subsequently, x_{ij} means the product-level, while $\sum_j x_{ij}$ is the total export of a given country, $\sum_i x_{ij}$ indicates the product-level export, and $\sum_i \sum_j x_{ij}$ is the total export of the world or a country group (Balassa, 1965).

In the original paper of Balassa, the i index indicated the combined export of 74 industrial products, while j index was for the sum of 11 developed industrial countries. In order to moderate the trade policy distortions, the B -index originally was limited only to the examination of industrial products. B -index starts from the fact that export structure is sensitive both for relative costs and the differences in non-price factors. Thus, comparative advantages are expected to determine the structure of export (Ferto, 2003).

The numerator and denominator of Balassa index is between 0 and 1. If $x_{ij}/\sum_j x_{ij}=1$, we speak about a monopoly, the product is supplied only by the examined country. Accordingly, the value of the index can be within $[0; \infty]$ interval. The actual upper limit $\sum_i \sum_j x_{ij} / \sum_i x_{ij}$ holds to infinity if $\sum_i x_{ij}$ holds to zero, that is the economic weight of the country is not significant regarding the export (Poor, 2010). If $B > 1$, the given country has a comparative advantage in case of the examined product, if the value of the index is between 0 and 1, we speak about the comparative disadvantage. The index is asymmetric in its structure because it is limited only from the bottom which results in skew dispersion in the positive range. The problem is handled on the basis of revealed symmetric comparative advantage (RSCA) developed by Dalrum et al. (1988).

$$RSCA = \frac{(B+1)}{(B-1)} \quad (6)$$

The Balassa index was criticised from many aspects, see for example Ferto (2003), Ferto et al. (2005), or Jambor et al. (2012). The critical approach can be the consequence of the wide range application of the index, even in international environment, where it served the comparison of very heterogeneous features and market regulators. In our opinion, in the case of the EU-27 countries (1) the geographical proximity, (2) similar macroeconomic conditions, and (3) nearly identical or simul-

taneously concluded trade policy agreements in more countries result that the predictability and applicability of the index can be regarded clearly sound. Due to the limits of the present study and the high number of reference points, we updated the index and adjusted the B value with the weighted average on the basis of the role of each product group in the export turnover at the national level, and the sum of these was calculated, according to the following formula:

$$B_i = \frac{\sum_j x_{ij}}{\sum_j x_{ij}} \times B_i, \quad (7)$$

where x is the export, i is the product group, j is the examined country. Subsequently x_{ij} is the product-level export of a given country, $\sum_j x_{ij}$ is the total export, and B_i is the Balassa index of i product group.

Findings

Regarding the foreign trade, it is obvious that the EU membership has resulted in the dynamic expansion in V4. The foreign trade growth and – in some cases of certain some product groups – the decline can be observed in the whole foreign trade turnover of agricultural products (within and beyond the EU-27). The question is to what extent can it be due to the expansion potential at the market of the examined countries.

Based on of the data of $MR_{E/I}$ index (Formula 1), it can be concluded that in the case of total export, the expansion of turnover was decisive in regards to the EU-27. The strongest was Slovakia, because in its case, 93% of the export growth went to the EU-27 markets. The value of Czech Republic was lower (87%), the next in rank is Hungary (77%), then Poland (71%). The same value increased again by 3% in the average of the period following the accession, in all these countries. Thus, we argue that in the examined countries, the markets of the European Union enabled the expansion. In the other approach, the common internal market had a considerable impact on trade improvement, which also resulted in the concentration of common markets from the V4 aspect (Vasary et al., 2012).

If the research is extended, it can be seen in regards to the EU-15 and the V4 that the growth is very strong at the market of the old member states (Table 1). In some cases the expansion of turnover exceeded 100% (2002, CZ, HU) which might be partly explained by the low pace of changes in the annual base value mentioned above, or by the fact that the expansion of turnover on the EU-15 markets could, in total, adjust the decline at other markets (e.g., extra EU-27).

Considering the results, it is confirmed that the accession to the EU in 2004 resulted in sound and strong market expansion. The best values were observed for Slovakia. It leads to the conclusion that as the result of the permanent expansion of the low base, the value of growth steadily increased and the market relations were less affected.

Reviewing the agrotrade balance (Formula 2), the situation of Visegrad countries is much clearer (see Figure 1). In general, it can be declared that the balance of Hungary remained permanently positive, in spite of the fact that a stronger decline could be observed after 2004. In case of Poland, the balance of the index improved after the accession, while in case of the other two countries, the integration has further worsened the negative value of the index. The export-import ratio has changed similarly.

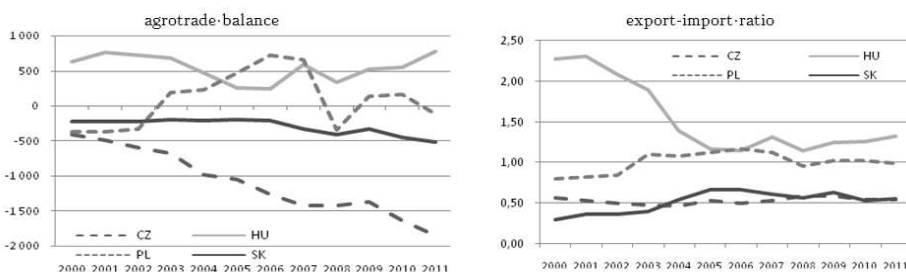
Table 1. Export growth rate in V4, total export (extra EU-27)* (2001–2011), %

	In relation to the EU-15										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Czech Rep.	41	100	18	58	43	50	50	25	17	16	34
Hungary	58	100	100	86	47	32	52	25	17	16	44
Poland	46	74	66	76	61	58	69	50	10	59	44
Slovakia	36	3	0	52	36	11	29	12	-100	-20	21
	In relation to the V4										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Czech Rep.	49	100	5	44	42	61	45	44	67	63	55
Hungary	-3	100	-26	22	17	35	14	21	16	39	38
Poland	9	32	6	14	16	21	9	19	19	10	12
Slovakia	60	88	48	47	56	75	76	61	100	94	75

* For the reasons of simplicity and applicability, the extreme values were indicated as 100% and -100% in some cases.

Source: Authors' elaboration, based on EUROSTAT, 2012a.

The tendencies of the export-import ratio⁶ gave an interesting result in regards to the trade processes (Formula 3). On the basis of values in Figure 2 it can be observed that in Hungary the value of the ratio decreased. In other words, the values of export and import come closer in the examined relation, but the export dominance could be maintained. The accession had a strong influence and the value of the index increased too, because the value of exported goods grew due to the emerging of the new markets.

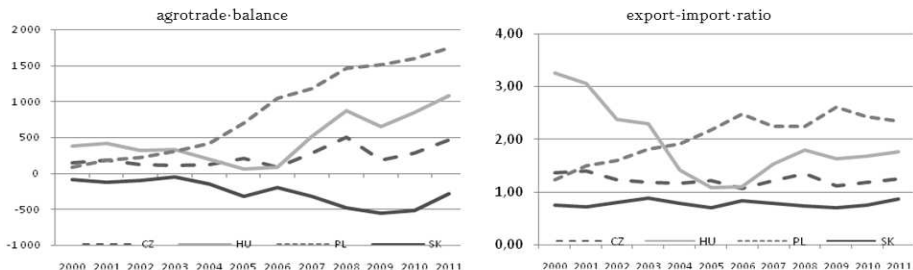


Source: Authors' elaboration, based on EUROSTAT, 2012a.

Figure 2. Agrotrade balance and export-import ratio of Visegrad countries with the EU-15 (2000–2011 current prices, mln euro)

The "opening of borders" in 2004 has resulted in the export activities of the V4 towards the EU-12 increased significantly, thus improving both the balance and the ratio values. The situation of Poland is noticeable, because they jumped high at the start in 2004 and gradually improved their export position compared to other V4 countries. In parallel with this, Hungary and Czech Republic could also show considerable activity at the markets of each other, but Slovakia clearly got stuck in this process and could not really increase its foreign trade activities in relation to the EU-12 countries.

⁶ It should be noted for the application of the ratio that the decline of demand and import can also distort the value of the index.



Source: Authors' elaboration, based on EUROSTAT, 2012a.

Figure 3. Agrotrade balance and export-import ratio of Visegrad countries with the EU-12 (2000–2011 current prices, mln euro)

From the review of individual countries, it is obvious that the product structure concentration in case of export can also be detected due to the impacts of the EU membership. In order to measure it, it is worth examining the ratio of products in foreign trade turnover. Herfindahl-Hirschman index is applied in the economic analysis for measuring the market concentration.

The values of countries (CZ, HU, SK, PL) and country groups (EU-27, EU-15, EU-12 and V4) involved in the examination are listed in Table 2. It was a priority in the construction of the table that the degree of concentration is determined not only for a country but for all the countries concerned. Thus, the comparability of states could be based.

The values in the table clearly confirm that export cannot be regarded as concentrated in any of the countries. It does not appear in the average of individual product categories that the examined markets have exclusive role. The strongest values could be observed in Czech-Polish, Slovak-Polish and Hungarian-Polish relations. In the case of the former, it concerned the period before the accession – when trade treaties were used for protection and/or support – while in the case of the latter it concerned the era after the accession. It can be concluded that the EU integration has significantly restructured the introduction of products on the market owing to the changes of trade barriers as well as the strengthening process of trade creation or, in some cases, trade diversion. The figures also indicate a concentration evolving on the geographical basis. In case of the 3 countries (CZ, HU, SK) out of the examined 4, the values in relation to the EU-12 and V4 strongly converge with each other, which means that in their case geographical conditions and location considerably affect the agricultural products export, that is the turnover beyond V4 has only a slight impact on the concentration of product groups.

Basically, trade within the region is typical for these countries. Substantial differences between the EU-12 and the V4 values can be seen only in case of Poland, probably due to the strong and traditionally determinant presence in relation to the Baltic states. In addition to the analysis of concentration, important information can be collected from the values of general competitiveness of individual products and countries. There are quite a few indices and evaluations for the quantification of comparative advantages. In this regard, the index applied in the analysis is related to Bela Balassa. A lot of versions of the index have been created during the last decades. In the current work, the original Formula is used for examining the impacts on competitiveness in connection with the turnover of the V4. Following the correction of the

asymmetric disproportion of the Balassa index, the RSCA indicator gives comparable values. Aggregated values were needed for the country-level comparison. The values for the individual countries were received on the basis of RSCA values aggregated according to the weight of product groups within the total trade turnover. The values of RSCA index corrected at the country level are listed in Table 3 which clearly shows how competitiveness is changed at the country level.

Table 2. Herfindahl-Hirschman-index values in the V4 countries with regard to export turnover with some countries and country groups, 2000–2011

Czech Republic											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
HU	0,1072	0,0893	0,0850	0,0862	0,0817	0,0747	0,0840	0,0946	0,0928	0,0898	0,0885
PL	0,1336	0,1142	0,1469	0,1850	0,1223	0,0856	0,0738	0,0765	0,0847	0,0785	0,0741
SK	0,0780	0,0729	0,0820	0,0816	0,0672	0,0705	0,0710	0,0711	0,0682	0,0715	0,0664
EU-27	0,0679	0,0675	0,0689	0,0673	0,0694	0,0652	0,0694	0,0694	0,0656	0,0658	0,0632
EU-15	0,1062	0,1015	0,0902	0,0746	0,0911	0,0892	0,0902	0,0918	0,0874	0,0889	0,0795
EU-12	0,0673	0,0642	0,0723	0,0759	0,0643	0,0621	0,0626	0,0639	0,0618	0,0620	0,0598
V4*	0,0678	0,0654	0,0738	0,0776	0,0635	0,0619	0,0620	0,0634	0,0617	0,0626	0,0604
Hungary											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
CZ	0,0809	0,0861	0,0908	0,1041	0,0869	0,0908	0,0893	0,0816	0,0897	0,0835	0,0828
PL	0,0878	0,1002	0,0860	0,1029	0,1051	0,1300	0,1156	0,1199	0,1522	0,1108	0,1032
SK	0,0794	0,1193	0,0770	0,0758	0,0758	0,0880	0,1164	0,0892	0,0974	0,0853	0,0990
EU-27	0,0973	0,1035	0,0954	0,0913	0,0873	0,0884	0,0818	0,1167	0,0971	0,0905	0,0906
EU-15	0,1347	0,1309	0,1141	0,1077	0,1010	0,1012	0,0968	0,1347	0,1084	0,1111	0,1088
EU-12	0,0722	0,0847	0,0790	0,1000	0,0773	0,0809	0,0748	0,1045	0,0998	0,0790	0,0803
V4*	0,0731	0,0794	0,0760	0,0814	0,0820	0,0873	0,0831	0,0845	0,0930	0,0732	0,0799
Poland											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
CZ	0,1175	0,1130	0,1047	0,1032	0,0929	0,0953	0,0905	0,0868	0,0871	0,0932	0,0935
HU	0,1503	0,1386	0,1253	0,1281	0,1050	0,0969	0,0932	0,0911	0,1038	0,1245	0,0913
SK	0,1336	0,1334	0,1202	0,1150	0,0924	0,1036	0,1019	0,0864	0,0793	0,0893	0,0977
EU-27	0,0770	0,0727	0,0757	0,0787	0,0708	0,0757	0,0776	0,0768	0,0760	0,0721	0,0732
EU-15	0,0975	0,0871	0,0874	0,0896	0,0760	0,0798	0,0822	0,0809	0,0802	0,0726	0,0737
EU-12	0,0926	0,0932	0,0931	0,0885	0,0817	0,0818	0,0793	0,0778	0,0755	0,0810	0,0832
V4*	0,1230	0,1167	0,1043	0,1023	0,0901	0,0875	0,0833	0,0800	0,0796	0,0876	0,0903
Slovakia											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
CZ	0,0747	0,0783	0,0791	0,0877	0,0851	0,0838	0,0770	0,0782	0,0745	0,0726	0,0684
HU	0,1342	0,1012	0,0887	0,1028	0,0952	0,0930	0,0853	0,0858	0,0886	0,0866	0,0964
PL	0,1907	0,2278	0,2008	0,1965	0,1518	0,1395	0,1809	0,1419	0,1124	0,1250	0,0993
EU-27	0,0651	0,0683	0,0685	0,0701	0,0731	0,0756	0,0756	0,0780	0,0727	0,0711	0,0742
EU-15	0,1141	0,1321	0,1091	0,0809	0,0892	0,0910	0,0928	0,1080	0,1122	0,1166	0,1011
EU-12	0,0701	0,0728	0,0742	0,0782	0,0786	0,0751	0,0741	0,0746	0,0689	0,0651	0,0716
V4*	0,0696	0,0721	0,0739	0,0775	0,0806	0,0747	0,0740	0,0753	0,0686	0,0653	0,0717

* Under the V4 we mean the turnover within the country group realized with the other 3 partners.

Source: Authors' elaboration, based on EUROSTAT, 2012a.

Higher values can be observed in the period before the EU accession due to more efficient market protection measures. In addition to this, it is true for all the countries that gradually introduced trade policy facilitations, preparation for the EU membership and the consequent changes of trade relations resulted the reduction of the index value year by year until it was stabilized at a low level. In other words, competitiveness – or at least market dominance – decreased in relation to the markets.

Table 3. Aggregated values of RSCA index examined in some relations of the V4 countries, (2000–2011)

Czech Republic														
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2000-2011	2004-2011
HU	0,243	0,220	0,172	0,114	0,092	0,116	0,119	0,149	0,167	0,149	0,142	0,147	-0,096	0,055
PL	0,215	0,188	0,210	0,248	0,186	0,128	0,100	0,079	0,112	0,096	0,087	0,086	-0,129	-0,099
SK	0,140	0,115	0,098	0,101	0,092	0,117	0,090	0,104	0,104	0,134	0,087	0,087	-0,053	-0,006
EU-27	0,012	0,013	0,009	0,009	0,004	0,003	0,002	0,001	0,001	0,001	0,001	0,001	-0,011	-0,003
EU-15	0,099	0,070	0,059	0,052	0,043	0,043	0,029	0,037	0,047	0,048	0,038	0,046	-0,053	0,003
EU-12	0,065	0,069	0,056	0,046	0,042	0,064	0,036	0,041	0,050	0,059	0,037	0,039	-0,026	-0,003
V4*	0,065	0,072	0,057	0,057	0,044	0,067	0,037	0,044	0,053	0,064	0,043	0,045	-0,020	0,000
Hungary														
CZ	0,256	0,324	0,223	0,215	0,239	0,251	0,267	0,280	0,270	0,247	0,174	0,151	-0,105	-0,087
PL	0,166	0,218	0,179	0,200	0,201	0,251	0,173	0,102	0,119	0,134	0,118	0,100	-0,066	-0,101
SK	0,135	0,154	0,154	0,158	0,166	0,155	0,206	0,168	0,120	0,140	0,128	0,127	-0,008	-0,039
EU-27	0,013	0,010	0,010	0,009	0,006	0,007	0,004	0,002	0,002	0,002	0,003	0,005	-0,008	-0,001
EU-15	0,069	0,043	0,038	0,045	0,026	0,027	0,024	0,028	0,025	0,024	0,022	0,024	-0,046	-0,003
EU-12	0,097	0,085	0,083	0,095	0,080	0,069	0,073	0,057	0,052	0,048	0,034	0,033	-0,064	-0,047
V4*	0,155	0,179	0,153	0,143	0,163	0,177	0,165	0,132	0,100	0,104	0,078	0,063	-0,092	-0,100
Poland														
CZ	0,194	0,178	0,165	0,152	0,099	0,078	0,071	0,051	0,066	0,078	0,065	0,082	-0,112	-0,017
HU	0,295	0,275	0,236	0,266	0,209	0,210	0,184	0,179	0,174	0,174	0,114	0,094	-0,200	-0,115
SK	0,247	0,261	0,208	0,207	0,111	0,094	0,100	0,076	0,076	0,090	0,076	0,082	-0,165	-0,029
EU-27	0,028	0,025	0,016	0,020	0,005	0,005	0,008	0,004	0,002	0,004	0,003	0,004	-0,024	-0,001
EU-15	0,088	0,078	0,058	0,053	0,023	0,022	0,024	0,016	0,010	0,008	0,009	0,010	-0,079	-0,013
EU-12	0,153	0,144	0,120	0,105	0,082	0,070	0,051	0,043	0,038	0,056	0,052	0,058	-0,096	-0,025
V4*	0,204	0,193	0,164	0,165	0,110	0,095	0,072	0,061	0,066	0,073	0,061	0,066	-0,138	-0,044
Slovakia														
CZ	0,080	0,076	0,059	0,069	0,056	0,052	0,054	0,040	0,042	0,093	0,071	0,094	0,014	0,038
HU	0,204	0,171	0,105	0,139	0,051	0,067	0,074	0,041	0,076	0,052	0,042	0,045	-0,159	-0,006
PL	0,308	0,350	0,330	0,312	0,226	0,203	0,211	0,197	0,187	0,148	0,119	0,119	-0,189	-0,107
EU-27	0,007	0,007	0,006	0,005	0,003	0,001	0,001	0,000	0,000	0,000	0,000	0,000	-0,007	-0,003
EU-15	0,205	0,192	0,167	0,140	0,096	0,058	0,054	0,071	0,088	0,079	0,056	0,056	-0,149	-0,040
EU-12	0,029	0,038	0,023	0,017	0,020	0,016	0,012	0,013	0,013	0,013	0,006	0,005	-0,023	-0,015
V4*	0,031	0,038	0,025	0,022	0,024	0,016	0,010	0,013	0,013	0,014	0,009	0,011	-0,020	-0,013

* Under the V4 we mean here the turnover within the country group realized with the other 3 partners.

Source: Authors' elaboration, based on EUROSTAT, 2012a.

It is clearly evident that nearly the same value changes could be observed for CZ and SK in the turnover of the V4 countries among each other. In case of PL and HU, the decline is more significant, but these two countries show similar tendencies. In case of Poland it should be noted that its competitiveness is strongly affected by the internal consumption, stable macroeconomic and budget situation, as well as

German and Ukrainian relations which are determinant and permanently expanding in trade. All these result that the pace of general convergence of Polish economy is outstanding within the V4 comparison (Kerner, 2012). Its round effect is very positive in trade processes, too, although the pace of competitiveness became slower in the examined relation but it is counterbalanced by expanding foreign trade volumes, markets stabilization and the expansion on them. Towards the EU-15, due to formerly stronger relations, the competitiveness declined less compared to CZ and SK. In case of the EU-12 the process is just the opposite: Hungarian and Polish values are worse than those of the other two countries. It can be explained by stronger relations maintained by HU and PL with the EU-15, while CZ and SK products were more popular in the EU-12.

The picture is more sophisticated while comparing the pairs of countries. Concerning the whole period the greatest decline in competitiveness could be observed in the relation of PL and HU. The value of index dropped almost to its third. In addition to this, the strongest deterioration was seen in Slovak-Polish, Polish-Slovak and Slovak-Hungarian relations. It is very interesting that Slovak-Polish relations mutually declined. It can be presumed that the possibility and consequence of market opening, often parallel processes of trade diversion and trade creation resulted in an almost identical agricultural foreign trade structure in these two countries.

The tendencies of competitiveness were basically revealed during the times before the EU accession. Following the accession, no substantial restructuring could be detected in most of these countries. There are, of course, some exceptions, because Czech-Hungarian relations had the greatest change of value. In this regard, Slovak-Hungarian and Polish-Slovak turnovers should also be mentioned because significant restructuring (up to 80% (PL-SK) or 90% (SK-HU) compared to the value of the whole period) could be observed even after the EU accession.

By comparing the competitiveness on the basis of the RSCA index, improvement or comparative expansion could be identified only in the case of CZ-HU relations after the accession and in case of SK-CZ relations during the whole period. Essentially, with regard to competitiveness the membership was advantageous only in these relations.

Conclusions

For the Visegrad countries the integration into the European Union in 2004 resulted in wider agrotrade possibilities, as well as difficulties in many aspects. The elimination of former customs duties and other trade barriers instantly led to a growth in trading activity. The expansion of trade turnover was inevitable due to the free flow of goods at the common internal market which was developed after the integration. The trade turnover which was gradually increasing in the case of old EU member states – has grown strongly and within a very short time in the relation to the neighbouring countries.

Our examinations have demonstrated that the value and volume of agricultural foreign trade turnover of the V4 countries has substantially expanded due to the changes occurring in the last 12 years. Within this, the expansion at the EU-27 market has been enforced by favourable tendencies that could be seen at the EU-15 and the V4 markets. The analysis has also pointed out that the trade balance had a posi-

tive tendency only in the case of Hungary and Poland, while in the turnover within the V4 only Slovakia could present negative, although improving, values. The mutual trade of goods within the Visegrad countries had a key role in the expansion of trade turnover. It can also be concluded that the market concentration in case of some products and some countries decreased owing to the impact of common internal market and the strengthening of internal market competition. With regard to the examined relations, it was confirmed that this process was associated with the decline of comparative advantages and the strong convergence of values in case of some relations. It should be noted that the period of time preparing for common market operation prior to the accession considerably affected the values. In spite of the generally increasing trading activity, the comparative values improved only in Slovakia and Czech Republic for the whole period, while the value of competitiveness decreased in other relations. Thus, the EU membership has created a number of possibilities, but – according to our examinations – these could not help to improve the values of these countries' competitiveness.

References:

- Balassa, B.* (1965). Trade liberalisation and "revealed" comparative advantage. *The Manchester School*, 33(2): 99–123.
- Bartosova, D., Bartova, L., Fidrmuc, J.* (2008). EU Enlargement implications on the new member states agrifood trade. International Congress, August 26–29, 2008 Ghent, Belgium 44122, European Association of Agricultural Economists. <http://ideas.repec.org/p/ags/eaee08/44122.html>.
- Bielik, P., Smutka, L., Horska, H.* (2012). Development of Mutual Agricultural Trade of Visegrad Group Countries. *Visegrad Journal on Bioeconomy and Sustainable Development*, 2012/1, pp. 2–11.
- Bojnec, S., Ferto, I.* (2009). Agrofood trade competitiveness of Central European and Balkan countries. *Food Policy*, 34(5): 417–425.
- Dalum, B., Laursen, K., Villumsen, G.* (1998). Structural Change in OECD Export Specialisation Patterns: De-Specialisation and 'Stickiness'. *International Review of Applied Economics*, 12: 423–443.
- Drabik, D., Bartova, L.* (2008). Agrifood Trade Specialisation Pattern in the New EU Member States International Congress, August 26–29, 2008 Ghent, Belgium 44122, European Association of Agricultural Economists. <http://ageconsearch.umn.edu/bitstream/44124/2/261.pdf>.
- EUROSTAT (2012a). International Trade, EU-27 Trade Since 1988 by HS2 database, <http://epp.eurostat.ec.europa.eu>, 2012.08.16.
- EUROSTAT (2012b). Taxation trends in the European Union, Data for the EU Member States, Iceland and Norway, p. 274.
- Euvonal (2012). Az EU-ba történő csatlakozás előfeltételei a szállítószintű vagy a vállalkozás szintű nyilatkozat is? http://www.euvonal.hu/index.php?op=kerdesvalasz_reszletes&kerdes_valasz_id=489, 2012.08.22.
- Ferto, I.* (2003). A komparatív előnyök mérése. *Statisztikai Szemle*, 81(4): 309–327.
- Ferto, I., Hubbard, L.I.* (2005). Az agrárkereskedelem dinamikája, A csatlakozó országok esete *Közgazdasági Szemle*, LII. évf., 2005. Január, p. 24–38.
- Halmi, P.* (szerk.) (2007). Az Európai Unió agrárrendszere, Mezőgazda Kiadó, Budapest, p. 402.
- Jambor A., Torok, A.* (2012). Változások az új tagországok agrárkereskedelmében az EU-csatlakozás után, *Statisztikai Szemle*, 2012, 7–8 szám, p. 632–651.
- Jambor, A.* (2011). Az agrárkereskedelem változása Magyarországon az Európai Unióhoz való csatlakozás után *Közgazdasági Szemle*, LVIII. évf., 2011. szeptember.
- Kerner, Zs.* (2012). Így hagynak le minket a lengyelek, Index, http://index.hu/gazdasag/vilag/2012/08/23/igy_hagynak_le_minket_a_lengyelek/ 2012.08.23
- Mészáros, K., Beres, D.* (2011). A magyar marhahús versenyesélyei az EU-ban, *Gazdalkodás* 55. évf. 7. szám, pp. 632–645.
- Mészáros, K.* (2012). A V4-es országok versenyesélyei a szarvasmarhahús külkereskedelmi forgalmában az EU-27-ben In: LIV. Georgikon Napok, Pannon Egyetem Georgikon Mezőgazdaságtudományi Kar Keszthely, 2012.10.11–12.
- Rajcaniova, M.* (2012). V4 food trade and market insights: from Economic Theory to Consumer's Reality *Food Sciences & Business Studies*. Nitra: Slovak University of Agriculture, 2012. pp. 25–41.

NAV (2012). Tajekoztato az egyes gabonak, olajos magvak értékesítése esetén 2012. július elsejétől alkalmazandó fordított adózásról http://nav.gov.hu/magyar_oldalak/nav/ado/afa080101_hatalyos/fordad_20120614.html 2012. 09.06.

Poor, J. (2010). Ertek- es aralapu modszerek a kulkereskedelmi versenykepesseg mereseben a magyar hustermekek kulkereskedelmenek piacan Doktori (PhD) értekezés, Pannon Egyetem Keszthely.

Qineti, A., Smutka, L. (2012). The agrarian trade transformation in the Visegrad Countries. Global commodity markets: new challenges and the role of policy: International Scientific Days 2012 05. 16–18, Nitra: Slovenska polnohospodarska univerzita, 2012. s. 267–280.

Svatos, M., Smutka, L. (2010). Development of agricultural foreign trade in the countries of Central Europe. Agric. Econ., Czech. 2010, 56, No. 5, pp. 163–175.

Takacs-Gyorgy, K., Takacs, I. (2012). Changes in cereal land use and production level in the European Union during the period 1999–2009, focusing on New Member States Studies In Agricultural Economics, 114 (1): 24–30.

United Nations (2006). Standard International Trade Classification Statistical Papers Series M No. 34/Rev. 4 ST/ESA/STAT/SER.M/34/REV.4.

Vasary, M., Kranitz, L., Baranyai, Zs. (2012). Versenykepesseg a Visegradi orszagok agrarkereskedelmeben In: LIV. Georgikon Napok, Pannon Egyetem Georgikon Mezőgazdasagtudományi Kar Keszthely, 2012.10.11–12. 2012. pp. 1–10.

Стаття надійшла до редакції 05.03.2013.