

# DEVELOPMENT OF MUTUAL AGRICULTURAL TRADE OF VISEGRAD GROUP COUNTRIES

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The agricultural trade of the individual Visegrad group countries is, both in terms of the commodity structure as well as the territorial structure, very distinctly concentrated. The overwhelming majority of agricultural trade – export as well as import – is conducted in relation to the EU countries. If we focus on the actual objective of the article, which is to identify the comparative advantages of agricultural trade of the V4 countries, the following may be stated. The agricultural trade of the Czech Republic, Slovakia and Hungary as a whole does not have comparative advantages either in the global market or in the internal market of the EU countries. However, Poland as the only representative of the V4 countries has comparative advantages in the field of agricultural trade, in relation both to the internal market of the EU countries, as well as to the global market (to the market of third countries). If we focus on the territory of the EU27 countries which represents the main trading partner of all of the analyzed countries, it may be stated that despite the fact that the Czech Republic, Slovakia and Hungary do not have comparative advantages in the area of agricultural trade in regard to the EU as a whole, they are able to achieve comparative advantages at the level of bilateral relationships with individual member countries of the EU. Within the scope of bilateral trade competition, Poland and Hungary are, of course, in the best positions. On the other hand, the Czech Republic and Slovakia are in the worst positions.

**Keywords:** agricultural trade, Visegrad group, export, import, market, competitiveness, position, structure, commodities, territories

## Introduction

The individual countries of today's Visegrad group (Czech Republic, Slovakia, Poland and Hungary) – hereinafter referred to as the V4 countries – have, within the past years, undergone stormy development, which has very significantly affected the structure of their economies including the agricultural sector and trade in agricultural products (Lukas, Mladek, 2006). Immediately after the break-up of the so-called eastern bloc, the Council for Mutual Economic Assistance, and the Soviet Union, a very significant economic decline occurred in the case of all of the analyzed countries, which was related to the collapse of the former socialist system and primarily its market (Lukas et. al., 2004). The agricultural sector suffered very significant losses in the period of the transition from a centrally planned economy to a market economy (Bartosova et al., 2008). Reforms pertaining to the restructuring of the national economy very significantly affected the scope and position of the agricultural sector within the economies of the individual countries (primarily, there was a reduction in the volume of animal production and a decline in the number of workers in the agricultural sector) (Svatoš, 2008). Such developments resulted in a decline in the level of self-sufficiency of the individual countries in regard to supplying their own markets. That was reflected primarily in the case of the Czech Republic and Slovakia (Bašek, Kraus, 2009; Hambálkova 2008). Agricultural trade was also affected by a number of changes that occurred within such period. The changes pertained to both exports as well as imports. The individual countries of today's Visegrad group opened their markets up more to imports of a whole range of products primarily from countries outside of the former eastern bloc. Further, there was also a significant restructuring of the territorial structure of agricultural export, whereby such countries gradually reoriented their trade flows from the former eastern bloc countries to the European Union member countries and, in time, also to countries that were candidates for the EU membership (Bojnec, Fertó, 2009). In the course of the transformation period of the economy, agricultural trade in the V4 countries changed its form very significantly. The importance of agricultural

trade within the national economy gradually declined. The share of agricultural export in the total export fell, in the case of all of the V4 countries, below 10% (in the case of the Czech Republic and Slovakia, there was also a much more significant reduction, as the position of the agricultural sector in these two countries is not as significant as it is in the case of Poland and Hungary) (World Bank database, 2010). In the course of the first years of transformation (at the beginning of the 1990's), there was an increase in the share of agricultural exports primarily to OECD member countries and primarily to countries of the EU15 of that time. On the other hand, the shares of the countries from the central European region, the eastern European region and primarily from the region of the countries of the Commonwealth of Independent States (CIS countries) in the total value of agricultural trade stagnated, or actually even gradually went down (Pokrivčák, 2008). Such development was related to the fact of how the V4 countries gradually integrated more and more into the world market and primarily into the western European market.

The liberalization process itself in the period of the 1990's did not pertain only to trade with EU15 countries. During the period, the V4 countries also initiated the creation of the Central European Free Trade Zone (CEFTA), within which there was also liberalization of agricultural trade (Vološin, 2002). However, it is necessary to mention that the rate of liberalization of agricultural trade within CEFTA was not as highly dynamic as was the case for the V4 and EU15 countries. The member countries of CEFTA (Czech Republic, Poland, Slovakia, Hungary and later also Bulgaria, Romania and Slovenia) were mutual competitors in the field of agro-trade, and thus the mutual liberalization of agricultural trade occurred very slowly (Vološin, 2010). In May of 2004, the countries of the V4 group became full-fledged members of the EU. Entry into the EU meant very significant changes in the area of agro-trade for the individual countries. The Czech Republic, Slovakia, Hungary and Poland became a part of the single market of the EU countries and all barriers limiting the movement of goods among such countries and EU15 countries up until that time came down. Additionally, the barriers affecting agricultural trade among such countries themselves and further new EU member countries,

which simultaneously expanded the EU, also came down (Svatoš, 2010). Thus, although barriers between the individual EU members (in this case including the V4 countries) were eliminated in May of 2004, agricultural trade between the EU countries and non-EU-member countries remained limited by existing barriers to trade caused by the existence of Common Commercial Policy and Common Agricultural Policy of the EU countries (Drabik and Bártová, 2008). This fact affected the trade of the V4 countries with regions lying outside of the market of the EU countries. Individual countries had to accept common customs duties of the EU countries and they also had to accept treaties entered into by the EU at a time when the V4 countries had not yet been EU members (Teplá, 2005). As a result of such acts, the V4 countries had to terminate a whole range of bilateral treaties that they had entered into with a whole range of countries throughout the world, and they had to replace such treaties with treaties entered into by the EU. As a result of such development, there was a loss of a whole range of trade contacts (Svatoš et al., 2009), which led to a weakening of the positions of non-EU-member countries within the territorial structure of agricultural trade of the individual V4 countries. On the other hand, such development led to the strengthening of the position of the EU member states as the most significant trade partners (Pohlová, 2008) of the Czech Republic, Slovakia, Poland and Hungary.

## Objective and methodology

The text in question focuses on the issues of the development of agricultural foreign trade of the V4 group of countries (Czech Republic, Hungary, Poland and Slovakia) with the goal of identifying its comparative advantages in the field of commodity structure and territorial structure,

**Table 2** List of aggregations representing commodity structure of agricultural trade

S3-00	LIVE ANIMALS	S3-08	ANIMAL FEED STUFF
S3-01	MEAT, MEAT PREPARATIONS	S3-09	MISC.EDIBLE PRODUCTS ETC
S3-02	DAIRY PRODUCTS,BIRD EGGS	S3-11	BEVERAGES
S3-03	FISH,CRUSTACEANS,MOLLUSC	S3-12	TOBACCO,TOBACCO MANUFACT
S3-04	CEREALS,CEREAL PREPRTNS.	S3-41	ANIMAL OILS AND FATS
S3-05	VEGETABLES AND FRUIT	S3-42	FIXED VEG. FATS AND OILS
S3-06	SUGAR,SUGR.PREPRTNS,HONEY	S3-43	ANIMAL,VEG.FATS,OILS,NES
S3-07	COFFEE,TEA,COCOA,SPICES		

Source: UN COMTRADE, 2012

both in relation to the global market, as well as in relation to EU27 countries – in this regard, the main emphasis is placed primarily upon the analysis of the mutual trade under way between the V4 group countries themselves in order to identify the commodity structure and territorial structure of the mutual trade, as well as to also identify the comparative advantages that have a direct impact on the development in the area of export effectiveness of individual countries.

In terms of the methodological issues, the analysis focuses not only on the development of mutual agricultural trade of the V4 countries, but there is also an analysis of the development of agricultural trade in relation to the EU27 countries – whereby special emphasis is placed on the existing differences in the development of agricultural trade in relation to the EU15 countries (old member states – hereinafter referred to as EU15) and in relation to the new member countries (i.e. states that acceded to the EU in the years 2004 and 2007 – such countries are referred to within the text as EU12 countries). Further, it is also important to mention that in analytical terms, the entire text is compiled from the viewpoint of the development of agricultural trade and other related variables within the scope of time including the period of the years 2000 – 2010.

In terms of the uniformity of the data source, the UN COMTRADE database was selected as the central source of data. The selected database enables the monitoring of the development of goods trade (including its agricultural and food sections) according to the Standard International Trade Classification (SITC). The selected nomenclature enables the classification of goods trade into ten basic commodity classes (individual classes subsequently contain thousands of individual items representing the final structure of goods trade). For the purposes of the conducted analysis, the processed data are on the agricultural trade level (sum of SITC aggregations 0, 1 and 4), trade in fuels and mineral resources (sum of SITC aggregations 2 and 3), and, further, trade in processed industrial products (sum of SITC aggregations 5, 6, 7 and 8). In view of the fact that the main objective of the article in question is primarily the analysis of the competitiveness of agricultural trade of the individual V4 countries, it is divided up into 15 aggregations for the purposes of a more detailed analysis of agricultural trade – see the table provided below.

The actual data obtained from the above-mentioned database are processed in terms of the development of the actual value of the effected exchange (in current prices in American dollars USD).

The analysis itself focuses on the issues of agricultural trade of the V4 countries in relation to agricultural trade in the world and in the EU countries. It is conducted by way of the utilization of basic statistical characteristics, such as the basic index, chain index and geometric mean. A great portion of the analysis is also conducted by way of indices, the objective of which is the characterization of the comparative advantages of individual countries agricultural export (the work utilizes modified Ballas indices RCA, and the Lafaye index is also used).

The Ballasa index provides a simple overview of the comparative advantage distribution (e.g., Proudman and Redding, 2000; Hinloopen and Marrewijk, 2001).

**Table 1** SITC – Basic classification of goods trade

SITC (code)	Aggregation
0	Food and live animals
1	Beverages and tobacco
v2	Crude materials, inedible, except fuels
3	Mineral fuels, lubricants and related materials
4	Animal and vegetable oils, fats and waxes
5	Chemicals and related products, n.e.s.
6	Manufactured goods classified chiefly by material
7	Machinery and transport equipment
8	Miscellaneous manufactured articles
9	Commodities and transactions not classified elsewhere in the SITC

Source: UN COMTRADE, 2012

### Revealed comparative advantage index (RCA1 – global/regional level):

$$RCA1 = (X_{ij} / X_n) / (X_{it} / X_{nt})$$

where:

$X$  – represents exports

$i$  – represents the analyzed country

$j$  – represents the analyzed sector of the economy (sector of industry or commodity)

$n$  – represents the group of countries or world

$t$  – represents the sum of all sectors of the economy or the sum of all commodities or the sum of all branches

The RCA1 index analyzes the exporting of commodity “ $j$ ” in the case of country “ $i$ ” in proportion to the total exports of the given country and the corresponding total exports of the analyzed group of countries or of the whole world (Hinloopen and Marrewijk, 2001; Utkulu and Seymen, 2004). A comparative advantage is then proven if the RCA1 index value is greater than 1. If, however, the result of the calculated index is less than 1, it may be asserted that the given country has a competitive disadvantage in the case of the given commodity or group of commodities (Qineti, Rajcaniova and Matejkova, 2009).

The bilateral comparative advantage of total agrarian trade and also individual items of the Czech, Hungarian, Polish and Slovakian agrarian export with respect to selected countries is analyzed by means of the Lafay index.

Apart from export flows, the Lafay index (hereinafter only the LFI index) also takes into account import flows. As opposed to the standard RCA index, its advantage is its ability to take into account the intersectoral trade and also re-export. In this respect, its information value is stronger as compared to the traditional index of the obvious comparative advantage (Balassa, 1965). It is suitable to utilize this index in the cases when a relationship between two business partners is analyzed. The advantage of the LFI index as compared to the RCA index is also its ability to include any distortions caused by macroeconomic fluctuations (Fidrmuc et al., 1999).

The LFI index enables to analyze the position of every specific product within the foreign trade structure of every specific analyzed country or a group of countries (Zaghini, A., 2003). The LFI index for the given “ $i$ ” country and for every “ $j$ ” analyzed product or group of products is defined in the following formula:

$$LFT_j^i = 100 \left( \frac{x_j^i - m_j^i}{x_j^i + m_j^i} - \frac{\sum_{j=1}^N x_j^i - m_j^i}{\sum_{j=1}^N x_j^i + m_j^i} \right) \frac{x_j^i - m_j^i}{\sum_{j=1}^N x_j^i + m_j^i}$$

where:

$x_j^i$  and  $m_j^i$  represent exports and imports of “ $j$ ” product realized by “ $i$ ” country or a group of countries with respect to the rest of the world or with respect to a selected business partner (partner country). “ $N$ ” is the number of analysed items (Lafay, 1992). The positive value of the LFI

Table 3 Development of value and structure of foreign trade (export and import) of Visegrad group countries in the years 2000 – 2010

Export		in bil. USD	2000 Export	2004 Export	2008 Export	2010 Export	Growth rate	2000 Import	2004 Import	2008 Import	2010 Import	Growth rate
CR	EU27	SITC 0,1,4	0.86	1.89	5.08	4.51	1.180	1.12	2.59	5.98	5.64	1.175
		SITC 2,3	1.79	3.42	7.75	8.12	1.163	1.45	2.8	6.1	5.18	1.136
		SITC 5,6,7,8,9	22.31	51.84	108.3	95.11	1.156	21.31	42.87	81.67	65.45	1.119
SR	EU27	SITC 0,1,4	0.32	0.89	2.24	2.39	1.223	0.59	1.07	3.03	2.82	1.169
		SITC 2,3	1.17	2.52	4.97	4.69	1.149	0.51	1.43	2.92	3.22	1.202
		SITC 5,6,7,8,9	9.17	20.75	52.59	46.82	1.177	7.81	17.75	37.1	28.11	1.137
Hungary	EU27	SITC 0,1,4	1.32	2.52	5.68	5.25	1.148	0.55	2.02	4.29	3.82	1.214
		SITC 2,3	0.9	1.68	3.68	3.51	1.146	0.84	1.72	3.86	3.36	1.149
		SITC 5,6,7,8,9	20.94	41.87	68.11	59.38	1.110	19.72	40.35	59.17	44.57	1.085
Poland	EU27	SITC 0,1,4	1.6	4.52	13.07	13.27	1.236	1.81	3.2	9.57	8.86	1.172
		SITC 2,3	2.2	5.29	9.31	8.61	1.146	1.66	2.83	8.88	6.18	1.140
		SITC 5,6,7,8,9	21.53	49.47	108.7	102.12	1.168	29.82	54.62	109.08	87.6	1.114
CR	World	SITC 0,1,4	1.11	2.18	5.53	4.94	1.161	1.56	3.27	7.1	6.65	1.156
		SITC 2,3	1.91	3.63	8.13	8.69	1.164	4.13	6.47	18.45	15.19	1.139
		SITC 5,6,7,8,9	26.03	59.96	132.43	118.51	1.164	26.55	56.97	116.28	103.85	1.146
SR	World	SITC 0,1,4	0.37	0.98	2.37	2.49	1.210	0.71	1.47	3.97	3.97	1.188
		SITC 2,3	1.22	2.59	5.19	4.84	1.148	2.73	4.78	11.36	10.55	1.145
		SITC 5,6,7,8,9	10.3	24.29	62.64	56.67	1.186	9.33	23.21	57.28	49.86	1.182
Hungary	World	SITC 0,1,4	1.96	3.41	7.12	6.5	1.127	0.92	2.29	4.7	4.12	1.162
		SITC 2,3	1.02	2.08	5.33	4.5	1.160	2.13	5.34	10.69	10.74	1.176
		SITC 5,6,7,8,9	25.12	49.98	95.76	83.7	1.128	29.03	52.62	93.39	72.5	1.096
Poland	World	SITC 0,1,4	2.43	6.11	16.13	16.79	1.213	2.86	4.95	13.6	13.08	1.164
		SITC 2,3	2.48	5.94	11.01	10.07	1.150	6.91	11.11	30.18	24.18	1.133
		SITC 5,6,7,8,9	26.05	61.73	144.72	130.21	1.175	38.36	72.1	166.7	136.87	1.136

Source: Comtrade, own processing, 2012

index indicates existence of a comparative advantage within the analyzed traded aggregation or a group of aggregations in question. The higher is the resulting value of the index, the higher is the level of specialization of the country in question as regards trade with the given item or a group of items representing agrarian and food trade in this case. And vice versa, the negative value of the LFI index signals that specialization and hence comparative advantages are lacking (Zaghini, 2003).

## Analysis and discussion

### Development and structure of goods trade of the Visegrad group countries with a focus on agricultural trade

The countries of the Visegrad group are representatives of the new member countries of the EU. A general characteristic of such countries is their very significant orientation toward foreign trade, which is primarily significant in the case of the Czech Republic and Slovakia, as well as in the case of Hungary. Poland also significantly engages in foreign trade activities, but nevertheless, the share of foreign trade in the Polish GDP is much lower in comparison with the share of foreign trade in the GDP of the Czech Republic, Slovakia and Hungary. If we analyze the commodity structure of goods trade of the V4 countries, we find that it is dominated (Table 3) by trade in processed industrial products. Further, it is also important to state that the actual territorial structure of goods trade of the V4 countries is distinctly oriented toward EU27 countries. Another interesting finding that pertains to the development of goods trade of the Visegrad group countries is also the fact that the average year-on-year rate of growth of goods trade of the V4 countries significantly exceeds both the average year-on-year

rate of growth of the world goods trade, as well as the average year-on-year rate of growth of goods trade of the EU countries. Thus, that also shows a significant increase in the value of effected trading operations in the years 2000 – 2010, when, in the case of exports, there was an increase in value from USD 100 billion to almost 500 billion USD (in the year 2008). In the case of goods imports, the value increased from USD 125 billion to approximately 530 billion (in the year 2008). It is also appropriate to mention that in terms of goods trade, the V4 group leaders are undoubtedly Poland and the Czech Republic.

In relation to the position of agricultural trade of the Visegrad group countries within the overall goods trade, it may be stated that likewise as in the case of the global and European market, agricultural trade represents only a supplement to goods trade. In the case of goods exports and imports, agricultural products have approximately a 7% or 6.2 % share in the total value (data for the year 2010). In this regard, it is important to state that the value of both agricultural exports as well as imports of the V4 countries is dynamically increasing. Just in the years 2000 – 2010, the value of agricultural export of the V4 countries increased from USD 6 billion to more than USD 30 billion, and in the case of agricultural import, there was an increase in the traded value from USD 6 billion to 28 billion. In terms of their own development of agricultural trade, the V4 countries achieve, other than certain exceptions, a positive balance of agricultural trade. Nevertheless, it is appropriate to state that currently, such positive balance is fully to the debit of the agricultural trade of Poland and Hungary, while the agricultural trade of the Czech Republic and Slovakia regularly finishes in negative values. A further significant characteristic of agricultural trade of the V4 countries is its distinct orientation towards the market of the EU countries – whereby a significant portion of the effected

Table 4a Competitiveness of commodity structure of goods trade of V4 countries in relation to the EU market and to the global market

Export		RCA1	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
CR	EU27	Agriculture	0.41	0.37	0.35	0.35	0.38	0.44	0.43	0.45	0.45	0.44	0.42
		Fuels and Raw mat.	1.08	1.07	1.31	1.01	0.92	0.79	0.74	0.77	0.73	0.97	0.88
		Processed products	1.05	1.06	1.05	1.07	1.07	1.08	1.08	1.08	1.09	1.07	1.08
SR	EU27	Agriculture	0.36	0.37	0.37	0.33	0.42	0.53	0.52	0.47	0.41	0.45	0.44
		Fuels and Raw mat.	1.66	1.72	1.64	1.40	1.60	1.33	1.10	0.99	0.94	1.09	1.02
		Processed products	1.01	1.01	1.02	1.04	1.01	1.02	1.04	1.06	1.07	1.06	1.07
Hungary	EU27	Agriculture	0.68	0.72	0.62	0.63	0.63	0.63	0.61	0.79	0.79	0.75	0.77
		Fuels and Raw mat.	0.59	0.58	0.56	0.54	0.56	0.58	0.45	0.56	0.54	0.58	0.60
		Processed products	1.06	1.06	1.07	1.07	1.07	1.08	1.09	1.06	1.07	1.07	1.07
Poland	EU27	Agriculture	0.75	0.72	0.69	0.72	0.88	1.06	1.12	1.12	1.08	1.05	1.06
		Fuels and Raw mat.	1.31	1.47	1.37	1.24	1.37	1.13	0.95	0.91	0.81	0.74	0.81
		Processed products	1.00	0.99	1.01	1.01	0.98	0.98	0.99	1.00	1.01	1.02	1.01
CR	others	Agriculture	1.04	0.79	0.50	0.70	0.57	0.65	0.46	0.38	0.31	0.30	0.28
		Fuels and Raw mat.	0.19	0.19	0.20	0.17	0.15	0.13	0.09	0.09	0.06	0.11	0.12
		Processed products	1.16	1.17	1.18	1.18	1.21	1.24	1.28	1.28	1.37	1.30	1.30
SR	others	Agriculture	0.69	0.65	0.61	0.46	0.42	0.53	0.44	0.23	0.21	0.17	0.16
		Fuels and Raw mat.	0.26	0.28	0.23	0.17	0.12	0.11	0.13	0.09	0.09	0.09	0.07
		Processed products	1.18	1.16	1.16	1.21	1.23	1.26	1.27	1.29	1.37	1.32	1.32
Hungary	others	Agriculture	2.20	2.08	2.08	1.83	1.62	1.26	1.28	0.72	0.80	0.69	0.76
		Fuels and Raw mat.	0.16	0.15	0.21	0.22	0.26	0.24	0.25	0.25	0.23	0.22	0.19
		Processed products	1.08	1.08	1.06	1.09	1.11	1.17	1.18	1.21	1.27	1.24	1.24
Poland	others	Agriculture	2.49	2.24	2.10	2.26	1.87	1.74	1.68	1.44	1.29	1.46	1.72
		Fuels and Raw mat.	0.32	0.34	0.32	0.26	0.28	0.20	0.18	0.16	0.18	0.18	0.22
		Processed products	1.02	1.02	1.04	1.04	1.08	1.14	1.17	1.18	1.25	1.18	1.15

Source: Comtrade, own processing, 2012

Table 4b Comparative advantage of individual V4 members agrarian exports items (aggregations) in relation to the EU members and the rest of the World (the market of so called „third countries“)

RCA1	EU27				World			
	CR	Hungary	Poland	Slovakia	CR	Hungary	Poland	Slovakia
S3-00	<b>1.99</b>	<b>1.52</b>	0.73	<b>1.96</b>	<b>3.82</b>	<b>5.37</b>	<b>2.34</b>	9.48
S3-01	0.49	<b>1.17</b>	<b>1.41</b>	0.54	0.20	<b>1.81</b>	<b>1.58</b>	0.33
S3-02	<b>1.29</b>	0.45	<b>1.12</b>	<b>1.67</b>	<b>4.86</b>	0.91	<b>2.27</b>	<b>2.43</b>
S3-03	0.31	0.01	<b>1.49</b>	0.08	0.04	0.00	0.30	0.01
S3-04	<b>1.54</b>	<b>2.76</b>	0.71	<b>1.93</b>	0.55	<b>1.49</b>	0.44	<b>1.30</b>
S3-05	0.41	0.80	<b>1.11</b>	0.55	0.60	<b>1.11</b>	<b>1.28</b>	0.59
S3-06	<b>2.28</b>	<b>2.09</b>	<b>1.18</b>	<b>3.14</b>	<b>1.91</b>	<b>1.10</b>	<b>1.62</b>	0.85
S3-07	<b>1.14</b>	0.70	0.96	<b>1.92</b>	<b>1.04</b>	0.28	<b>1.35</b>	<b>2.42</b>
S3-08	<b>1.08</b>	<b>1.67</b>	0.51	0.71	0.58	<b>1.71</b>	0.57	0.45
S3-09	<b>1.72</b>	0.54	<b>1.13</b>	<b>1.20</b>	<b>1.74</b>	<b>1.22</b>	1.78	2.60
S3-11	0.95	0.45	0.29	0.48	<b>2.60</b>	0.41	0.67	0.68
S3-12	<b>2.14</b>	0.27	<b>1.76</b>	0.00	0.74	0.13	<b>2.16</b>	0.00
S3-41	0.16	0.63	0.45	<b>1.05</b>	0.12	0.37	<b>2.77</b>	<b>1.12</b>
S3-42	0.63	<b>1.03</b>	0.51	0.26	0.28	0.51	0.01	0.02
S3-43	0.74	0.06	0.16	<b>1.08</b>	0.31	0.01	0.02	0.08

Source: Comtrade, own processing, 2012

exports as well as imports goes through EU12 countries. An important role in this regard is also played by the actual trade effected between the individual V4 member countries amongst themselves.

A specific characteristic of goods trade of the V4 countries is the competitiveness of effected goods transactions, both in relation to the market of the EU27 countries, as well as in relation to the market of third countries. In this regard, it is appropriate to emphasize that currently, in terms of the development of the value of effected trade flows, the important thing is primarily the ability to retain comparative advantages in relation to the EU27 market, which represents the main outlet for exports originating from V4 countries. The following Table 4 provides information on the development of values of the RCA1 index in the case of individual goods categories traded by the individual V4 countries. The data show that comparative advantages are being maintained on a long-term basis by all of the monitored countries primarily in the case of trade in processed industrial products, both in relation to the EU market, as well as in relation to the market of third countries. Trade in fuels and mineral resources is, as a whole, uncompetitive on a long-term basis, both in relation to the EU countries, as well as in relation to third countries. As regards agricultural trade, there we can state that agricultural trade of the V4 countries is currently uncompetitive, both in relation to the EU market, as well as in relation to the market of third countries. Nevertheless, in the case of Poland, the situation is the opposite. Polish agricultural trade, unlike agricultural trade of the Czech Republic, Slovakia and Hungary, is

Table 5 Territorial structure of agricultural trade of the V4 countries in relation to the EU countries

mil. USD		CR	Hungary	Poland	Slovakia	V4	mil. USD	CR	Hungary	Poland	SR	V4
Import	Austria	298.2	361.5	175.5	91.1	926.3	Export	299.9	476.7	262.8	165.0	1204.5
Import	Belgium	216.8	96.1	335.0	41.0	688.9	Export	81.4	117.4	383.0	25.3	607.1
Import	Bulgaria	19.6	15.1	59.9	9.4	104.0	Export	30.0	102.2	137.7	54.5	324.4
Import	Cyprus	2.0	11.7	8.7	1.1	23.5	Export	1.8	15.0	12.3	7.6	36.7
Import	Czech	0.0	212.1	440.9	928.2	1581.1	Export	0.0	258.3	1070.4	684.4	2013.2
Import	Denmark	86.5	45.6	632.4	16.0	780.5	Export	34.7	32.9	358.0	2.3	427.9
Import	Estonia	4.0	0.7	7.5	1.0	13.1	Export	5.6	18.0	90.0	1.5	115.1
Import	Finland	10.4	1.7	55.5	3.3	70.9	Export	18.4	16.9	133.9	10.2	179.5
Import	France	250.5	150.2	501.6	72.8	975.0	Export	126.4	222.3	1040.4	21.6	1410.7
Import	Germany	1535.0	915.1	2814.2	411.3	5675.5	Export	880.9	709.6	3600.1	97.9	5288.6
Import	Greece	67.6	29.8	126.1	21.0	244.5	Export	12.7	92.9	127.0	3.2	235.8
Import	Hungary	265.2	0.0	250.0	330.4	845.6	Export	216.1	0.0	610.7	672.4	1499.2
Import	Ireland	49.8	35.8	99.9	17.0	202.5	Export	21.7	6.7	123.4	1.4	153.1
Import	Italy	390.4	195.7	614.1	112.1	1312.3	Export	356.6	662.9	988.1	111.5	2119.2
Import	Latvia	4.4	0.7	35.8	5.7	46.6	Export	9.6	14.5	176.2	1.6	201.9
Import	Lithuania	9.9	10.6	130.1	1.3	151.9	Export	27.2	37.2	379.1	6.5	450.0
Import	Luxembourg	1.2	4.7	1.8	1.4	9.2	Export	1.8	1.9	4.9	0.0	8.6
Import	Malta	0.0	0.2	0.0	0.0	0.3	Export	0.8	2.1	6.7	0.0	9.6
Import	Netherlands	386.2	421.3	971.8	112.4	1891.7	Export	82.0	212.9	958.4	40.6	1293.9
Import	Poland	1007.5	568.1	0.0	444.2	2019.8	Export	480.6	265.5	0.0	272.5	1018.6
Import	Portugal	38.4	13.5	31.0	2.1	84.9	Export	5.8	10.7	55.7	2.3	74.5
Import	Romania	28.2	147.5	46.4	21.8	243.9	Export	87.1	902.0	305.2	127.0	1421.5
Import	Slovakia	499.9	325.6	245.1	35.8	1106.4	Export	1431.5	624.3	515.9	0.0	2571.8
Import	Slovenia	6.4	97.5	4.5	5.3	113.6	Export	45.1	142.6	91.6	13.4	292.7
Import	Spain	343.8	80.6	754.0	104.2	1282.7	Export	41.9	64.3	331.8	28.2	466.3
Import	Sweden	32.0	9.0	123.1	10.4	174.5	Export	54.6	49.3	289.8	8.1	401.7
Import	UK	83.9	74.0	393.2	17.2	568.3	Export	157.7	188.5	1214.2	32.1	1592.5

Source: Comtrade, own processing, 2012



capable of achieving comparative advantages, and, importantly – it is also capable of amplifying them.

In relation to the development of values of the RCA1 index, it is also appropriate to mention the development of the competitiveness of Hungarian agro-trade, which, unlike that of Poland, has had a tendency to stagnate within recent years. Hungary – at one time the number one agricultural exporter within the monitored region – has been significantly declining within recent years. That pertains primarily to the dynamics of growth of Hungarian agricultural export, which continues to decline. However, the decline in the dynamics of growth of agricultural export is not the main problem of Hungary – the main problem is the continually growing rate of growth of agricultural imports – which gradually leads to a decline in the significance of agricultural trade as a source of a positive trade balance.

As it was mentioned before, Czech, Slovak and Hungarian agrarian total exports do not have comparative advantage both in relation to the EU market and to “third countries” market. On the other hand, Polish total agrarian export is competitive both in relation to the global market and the EU market. It must be emphasized that despite of the fact that Czech, Hungarian and Slovak total agrarian exports are not competitive, the total realized export value of all countries is constantly growing. The reason of this development is the fact that individual items (individual aggregations) representing total agrarian trade are able to get competitive advantage both in relation to the global market and the EU market. The details related to comparative advantage distribution of export items of individual V4 members’ agrarian trade are available in the following table (table 4b).

#### Agricultural trade of the V4 countries in relation to partners from EU countries – status as of 2010

Table 5, as mentioned further in the text, provides a detailed overview of the development of the territorial structure of agricultural trade of the individual V4 countries in relation to the individual member countries of the European Union. The Table shows that although the individual V4 countries effect trade operations in agricultural and food goods in relation to all other member countries – their territorial structure of agricultural trade is significantly limited and greatly concentrated. The great concentration of agricultural trade in relation to individual EU countries is evidenced by the following findings shown in the table. In the case of the Czech Republic, the most significant partners are: Germany, Slovakia, Austria, Hungary, Italy, Poland and Romania (these countries participate in the total agricultural export and import with a share of 74.2% or 56.1% respectively). In the case of Slovakia, the most significant partners are: the Czech Republic, Austria, Germany, Hungary, Italy and Poland (these countries participate in the agricultural export and import with a share of 85.6% or 59% respectively). In the case of Hungary and Poland, the territorial concentration on a limited number of the EU countries is not as prominent as is the case for the Czech Republic and Slovakia, but, nevertheless, a narrow orientation toward several key members of the EU territory is more than clear. In the case of Hungary, the most significant partners are: Germany, Italy, Romania, Slovakia, Austria, Poland and the Czech Republic (these countries participate in the agricultural export and import with a share of 60% or 66% respectively). And, finally, the most significant Polish trading partners from the territory of the EU countries are: Germany, the Czech Republic, France, Italy, Hungary, Great Britain, Netherlands and Slovakia (these countries participate in the agricultural export and import with a share of 60% or 48% respectively). The data further show that the individual V4 countries are mutual significant business partners to each other. In the case of the Czech Republic, the countries of the V4 are currently participating with a share of approximately 43.1% in the total agricultural exports and 26.6%

of imports. In the case of Slovakia, the share of V4 countries represents approximately 65.5% for export and approximately 42.9% for agricultural import. Further, the V4 countries also participate in agricultural exports and imports of Hungary with a share of approximately 17.7%, or 26.9% respectively. Only in the case of Poland the share of V4 countries in the actual agricultural export (13.1%) and import (7.2%) is marginal, for reasons of its significantly higher production as compared to the other countries. The production of Poland significantly exceeds the absorbing capacities of the market of the V4 countries. The reason for the low share of V4 countries in Polish imports is the fact that, in relation to Poland, the V4 countries do not have such significant comparative advantages as it is the other way around.

The following Table 6 provides an overview of the distribution of the comparative advantages in the case of the agricultural trade of the individual monitored countries. As was stated above, agricultural trade as a whole does not currently have comparative advantages in relation to the market of the EU27 countries in the case of any other country of the V4 group, with the exception of Poland. Nevertheless, this contradicts the fact that agricultural trade, including exports effected by V4 countries in relation to the market of the EU countries, is continually increasing in its own value. Such development is an evidence of the fact that the individual countries, although they do not achieve comparative advantages in relation to the EU27 as a whole – do achieve at least partial comparative advantages on the level of individual EU members.

Table 6 Comparative advantages of agricultural trade of the V4 countries in relation to the partners from the EU countries

LFI 2010	CR	Hungary	Poland	Slovakia	V4
Austria	-1.2	<b>1.7</b>	<b>1.4</b>	-0.7	-0.1
Belgium	-3.5	<b>1.3</b>	<b>1.1</b>	-1.7	-0.7
Bulgaria	-2.2	<b>1.8</b>	<b>3.9</b>	<b>1.9</b>	<b>0.8</b>
Cyprus	-1.4	<b>11.2</b>	-5.1	-0.5	-1.9
Czech	N/A	<b>0.0</b>	<b>2.2</b>	-3.0	-0.3
Denmark	-4.1	-2.1	-8.5	-2.5	-6.4
Estonia	-1.4	<b>4.7</b>	<b>2.5</b>	-0.6	<b>2.1</b>
Finland	0.0	2.5	4.2	1.4	v
France	-2.1	-0.1	<b>1.5</b>	-1.2	-0.3
Germany	-1.4	-0.7	<b>0.7</b>	-1.6	-0.6
Greece	-16.3	-2.8	-9.8	-7.1	-9.0
Hungary	-1.3	N/A	<b>2.7</b>	-1.3	<b>1.4</b>
Ireland	<b>1.0</b>	-3.1	<b>5.5</b>	-2.7	<b>2.4</b>
Italy	-1.2	<b>3.6</b>	<b>2.1</b>	-0.9	1.1
Latvia	-2.0	<b>1.0</b>	<b>1.7</b>	-6.5	<b>0.0</b>
Lithuania	-0.2	<b>0.4</b>	<b>4.2</b>	-0.2	<b>2.7</b>
Luxembourg	<b>0.3</b>	-1.1	<b>1.1</b>	-1.2	<b>0.2</b>
Malta	<b>1.7</b>	<b>5.2</b>	<b>11.0</b>	N/A	<b>5.9</b>
Netherlands	-4.1	-2.6	-0.6	-5.7	-2.7
Poland	-3.5	-4.7	N/A	-5.1	-4.2
Portugal	-4.3	-2.8	<b>1.0</b>	-0.3	-1.6
Romania	0.8	4.5	4.9	2.8	4.0
Slovakia	<b>2.4</b>	<b>1.3</b>	<b>2.9</b>	N/A	<b>2.3</b>
Slovenia	2.6	1.3	7.9	0.3	2.9
Spain	-7.0	-2.5	-6.8	-5.8	-6.5
Sweden	-0.1	<b>2.1</b>	<b>1.2</b>	-0.8	<b>0.6</b>
United Kingdom	-0.4	-0.4	<b>1.6</b>	-0.1	<b>0.4</b>

Source: Comtrade, own processing, 2012

In relation to the member countries of the EU, the Czech Republic achieves comparative advantages in the case of trade with Slovakia, Slovenia, Romania, Malta and Luxembourg. In the case of Slovakia, the situation is similarly poor. Slovakia achieves comparative advantages in agricultural trade only in relation to Bulgaria, Finland, Romania and Slovenia. Generally, it may be stated that the Czech Republic and Slovakia are, in relation to the distribution of comparative advantages of agricultural trade as a whole among the EU member countries, in the worst position of all of the monitored V4 countries. Hungary and Poland are in the opposite position. Hungary achieves comparative advantages in relation to Austria, Belgium, Bulgaria, Cyprus, Estonia, Finland, Italy, Lithuania, Latvia, Malta, Romania, Slovakia, Slovenia and Great Britain. Poland retains comparative advantages in relation to Austria, Belgium, Bulgaria, Czech Republic, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Latvia, Luxembourg, Malta, Portugal, Romania, Slovenia, Slovakia, Sweden and Great Britain. Then, the general finding is that in relation to the market of the V4 countries, the comparative advantages are held primarily by Poland, which significantly dominates the entire market.

### **Mutual agricultural trade of the V4 countries – commodity structure and territorial structure**

The following Table 7 provides a detailed overview of effected goods flows between the individual monitored countries and territory of the V4. The said data show that in terms of the market of the V4 countries, the dominant aggregation being traded is processed industrial products. The share of agricultural trade in the total trade flows effected within the market of the V4 countries only ranges around the 10% level.

The leader of the agricultural market of the V4 countries is undoubtedly the Czech Republic, which participates in the total agricultural trade effected within the V4 countries with a share of over 30% (30% is the share in the value of exports and approximately 32% in the value of imports effected within the V4 market). The second place is then held by Slovakia – which, by way of intensive exchange effected between it and the Czech Republic, participates in the trade turnover of the territory of the V4 with a share of approximately 26% (the share of exports being approximately 3%, and the share of imports approximately 31%). Poland participates in the turnover of agricultural trade within the territory of the V4 countries with a share of approximately 25% (export 31% and import approximately 17%) and Hungary participates with a share of approximately 17% (export 16.2% and import 20%).

In terms of the distribution of comparative advantages within the market of the V4 countries, the Czech Republic achieves long-term comparative advantages in the case of industrial products, and Slovakia achieves comparative advantages in the field of trade in fuels and mineral resources, Hungary has comparative advantages in relation to trade in processed industrial products and agricultural products, and Poland has a comparative advantage primarily in the case of trade in agricultural production. However, it may be stated generally that the results of the analysis of the distribution of RCA1 index values within the territory of the V4 countries point to the fact that all of the countries have a tendency to specialize in the area of trade in processed industrial production, where the value of the RCA1 index is higher than 1 or very close to 1. In relation to trade in agricultural and food production, the finding is that the Czech Republic and Slovakia do not achieve comparative advantages in terms of agro-trade within the monitored territory. On the other hand, Poland has a continuously growing comparative advantage. In the case of Hungary, we can see strong fluctuations in the RCA1 index value, which shows that the comparative advantages of Hungarian agricultural trade are gradually fading away. More detailed data pertaining to the development of RCA1 index values can be found in the following Table 8.

### **Mutual agricultural trade of the countries of the Visegrad group**

As was already stated above, agricultural trade of the V4 countries represents only a marginal share of the total mutual goods trade. The presented data also show the participation of the individual countries in the mutual agricultural trade and the distribution of comparative advantages in terms of the market of the V4 countries. The following text focuses on a detailed analysis of the commodity structure and territorial structure of agricultural trade of the V4 countries. The data set out in Table 9 show that the value of mutual trade among the V4 countries is growing dynamically. Only in the years 2000 – 2010, the value of mutual agricultural trade rose from approximately USD 1.1 billion to more than USD 7 billion – which shows an exceptional growth rate of mutual trade, which ranged around a level of approximately 20% within the monitored period. If we look at the commodity structure of mutual agricultural trade of the V4 countries in detail, we find that this structure is dominated primarily by trade in the following aggregations: grains (14.5%), vegetables and fruit (12.5%), milk and dairy products (11.4%), meat and meat products (10.8%), stimulants (10.9%) and beverages (7.3%). Further, in terms of the dynamics of growth in value, the most distinctly growing aggregations include the following: meat and meat products (35%/year), sugar and candy products (29%/year), live animals (28%/year), milk and dairy products (24%/year) and vegetable and animal fats and oils (22-23%/year).

The Table 9 also provides an overview of the development of export, import and the balance of agricultural trade carried out on the market of the V4 countries in the case of the individual monitored countries. The table shows the especially bad situation of Slovakia, which has a long-term negative balance in the case of agricultural trade in relation to the territory of the V4 countries. In the case of the Czech Republic and Poland, on the other hand, a positive balance predominates. In the case of Poland, this is caused by substantial comparative advantages primarily in relation to the Czech Republic and Slovakia. In the case of the Czech Republic, the positive balance within the territory of the V4 countries is caused by a distinctly positive balance in relation to Slovakia. Table 10 provides a detailed overview of the commodity structure of mutual trade of the V4 countries. In general, the table shows that the V4 countries have a very similar commodity structure in mutual trade, both in relation to effected exports, as well as imports. Thus, the table shows that there is very significant competition between the individual countries in terms of agricultural trade. Such competition is also further strengthened by a very similar profile of the individual economies and similar production focus, both on the level of agricultural production, as well as on the level of food production.

The last of the prepared tables (Table 11) provides an overview of the distribution of comparative advantages on a bilateral level between individual countries of the Visegrad group, specifically in terms of the individual traded aggregations. As was stated above, agricultural trade as a whole holds comparative advantages in relation to global markets only in the case of Poland and Hungary. In relation to the market of the V4 countries, only the agricultural trade of Poland has comparative advantages as a whole, and in some years, also Hungarian agricultural trade. Agricultural trade of the Czech Republic and Slovakia as a whole does not have comparative advantages even in regard to the global and European market, or even in relation to the market of the V4 countries. Nevertheless, it is appropriate to state that agricultural trade as a whole is growing in the case of all of the V4 countries, and not only in the case of imports, but also in the case of exports. The above thus clearly shows that there must exist comparative advantages – if not on the level of overall agricultural trade, then at least on the level of individual aggregations, which represent the motor for the actual growth of effected agricultural trade. Table 11 provides an overview of the distribution of comparative advantages in the case of individual aggregations traded between the monitored

countries mutually. In the case of each of the monitored countries, there are 45 flows monitored within 15 goods aggregations effected between the given economy and its three partners. The results show (for the year 2010) that the Czech Republic has, in relation to Hungary, comparative advantages in the case of 8 monitored aggregations, in the case of 7 aggregations in relation to Poland, and the Czech Republic has comparative advantages in relation to Slovakia in the case of trade in 8 aggregations (i.e. the Czech Republic

has comparative advantages in the case of 23 out of 45 monitored flows). Slovakia has, in relation to Hungary, comparative advantages in the case of 8 aggregations, in the case of 5 aggregations in regard to Poland, and Slovakia achieves comparative advantages in the case of 7 aggregations in relation to the Czech Republic (i.e. 20 out of 45 monitored flows). Hungary achieves comparative advantages in relation to the Czech Republic for 7 aggregations, for 7 aggregations in relation to Slovakia, and there was a comparative

Table 7 Goods structure of foreign trade of the V4 countries in relation to the market of the V4 countries

Export		bil. USD	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Growth rate – year-on-year (average value)
CR	V4	Agriculture	0.45	0.49	0.60	0.65	0.90	1.25	1.38	1.94	2.45	1.99	2.13	1.167
		Fuels and Raw mat.	0.39	0.49	0.73	0.64	1.02	1.28	1.55	2.06	2.82	2.09	2.78	1.215
		Processed products	3.50	4.07	5.20	6.04	8.82	10.56	12.99	17.46	20.74	14.71	16.76	1.169
SR	V4	Agriculture	0.23	0.27	0.32	0.41	0.58	0.83	1.04	1.36	1.47	1.51	1.63	1.217
		Fuels and Raw mat.	0.72	0.75	0.77	0.96	1.40	1.57	1.96	2.28	3.03	2.11	2.58	1.136
		Processed products	2.39	2.49	2.67	3.54	4.74	6.01	8.02	11.11	13.63	11.49	13.49	1.189
Hungary	V4	Agriculture	0.21	0.21	0.23	0.27	0.37	0.40	0.52	0.77	1.10	0.88	1.15	1.184
		Fuels and Raw mat.	0.10	0.10	0.10	0.13	0.24	0.34	0.29	0.57	0.56	0.39	0.50	1.181
		Processed products	1.01	1.24	1.51	2.26	3.36	4.62	7.61	9.26	10.94	7.94	9.30	1.248
Poland	V4	Agriculture	0.23	0.26	0.30	0.39	0.66	1.03	1.38	1.68	2.22	2.05	2.20	1.253
		Fuels and Raw mat.	0.31	0.40	0.45	0.69	1.17	1.12	1.68	1.76	2.08	1.55	1.93	1.199
		Processed products	1.67	1.96	2.31	3.17	4.56	5.94	8.41	11.06	14.04	10.84	13.70	1.234
Import		bil. USD	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
CR	V4	Agriculture	0.35	0.37	0.50	0.59	0.76	0.99	1.32	1.62	1.86	1.83	1.77	1.178
		Fuels and Raw mat.	0.63	0.71	1.61	1.02	1.59	1.63	1.93	2.25	2.84	1.86	2.22	1.135
		Processed products	2.63	2.88	3.62	4.22	5.84	7.01	9.10	12.39	15.07	10.73	12.53	1.169
SR	V4	Agriculture	0.32	0.39	0.42	0.49	0.61	0.96	1.04	1.38	1.83	1.60	1.74	1.186
		Fuels and Raw mat.	0.27	0.34	0.42	0.59	0.96	0.90	1.14	1.29	1.81	1.22	1.85	1.210
		Processed products	1.95	2.35	2.79	3.87	4.58	5.13	6.77	9.18	11.01	8.04	8.80	1.163
Hungary	V4	Agriculture	0.11	0.14	0.17	0.24	0.49	0.66	0.76	0.95	1.10	1.03	1.11	1.256
		Fuels and Raw mat.	0.29	0.29	0.32	0.42	0.57	0.76	0.95	1.00	1.23	0.85	0.76	1.103
		Processed products	1.40	1.60	1.96	2.72	3.79	4.16	6.13	7.21	8.85	6.13	6.93	1.173
Poland	V4	Agriculture	0.30	0.26	0.28	0.32	0.39	0.46	0.60	0.89	1.10	0.87	0.94	1.122
		Fuels and Raw mat.	0.28	0.33	0.29	0.35	0.61	0.72	0.87	1.15	1.95	1.10	1.49	1.182
		Processed products	2.41	2.63	2.89	3.85	5.30	5.95	7.66	9.91	11.89	9.07	10.67	1.160

Source: Comtrade, own processing, 2012

Table 8 – Distribution of comparative advantages of individual goods segments carried out by the V4 countries amongst themselves mutually

Export		RCA1	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
CR	V4	Agriculture	1.03	1.01	0.96	0.98	0.93	0.95	0.94	0.96	0.98	0.95	0.94
		Fuels and Raw mat.	0.66	0.71	0.83	0.69	0.69	0.79	0.83	0.88	0.96	1.04	1.12
		Processed products	1.05	1.05	1.03	1.05	1.06	1.04	1.03	1.02	1.01	1.00	1.01
SR	V4	Agriculture	0.68	0.79	0.88	0.92	0.96	0.98	1.02	0.98	0.84	0.89	0.88
		Fuels and Raw mat.	1.58	1.56	1.52	1.54	1.51	1.51	1.52	1.42	1.48	1.31	1.27
		Processed products	0.94	0.92	0.92	0.92	0.91	0.92	0.92	0.94	0.95	0.97	0.98
Hungary	V4	Agriculture	1.58	1.40	1.31	1.12	1.03	0.74	0.67	0.77	0.91	0.86	1.01
		Fuels and Raw mat.	0.56	0.47	0.40	0.39	0.44	0.51	0.29	0.49	0.39	0.40	0.40
		Processed products	1.00	1.04	1.07	1.09	1.10	1.11	1.14	1.10	1.10	1.10	1.09
Poland	V4	Agriculture	1.03	1.03	1.02	1.02	1.14	1.27	1.30	1.23	1.26	1.27	1.18
		Fuels and Raw mat.	1.03	1.12	1.09	1.28	1.32	1.12	1.25	1.12	1.00	1.01	0.95
		Processed products	0.99	0.98	0.98	0.95	0.92	0.95	0.93	0.96	0.97	0.96	0.98

Source: Comtrade, own processing, 2012



Table 9 Position of individual member countries within agricultural trade carried out among the V4 member countries themselves

Mil. USD		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2000-10
<b>V4</b>	<b>trade</b>	<b>1127,2</b>	<b>1227,8</b>	<b>1456,6</b>	<b>1726,0</b>	<b>2513,9</b>	<b>3506,0</b>	<b>4315,0</b>	<b>5760,3</b>	<b>7233,0</b>	<b>6426,3</b>	<b>7102,7</b>	<b>42394,7</b>
<b>CR</b>	<b>export</b>	454,9	488,6	603,2	646,8	900,8	1249,8	1379,3	1938,1	2446,5	1986,5	2128,2	<b>14222,8</b>
	<b>import</b>	355,2	391,2	465,9	601,6	830,5	1065,2	1384,3	1747,5	2127,8	1992,7	2013,2	<b>12975,0</b>
	<b>balance</b>	99,7	97,4	137,3	45,2	70,3	184,6	-5,0	190,6	318,7	-6,2	115,1	1247,7
<b>Hungary</b>	<b>export</b>	212,7	205,2	231,2	270,1	369,1	402,4	517,5	774,8	1097,1	876,0	1148,1	<b>6104,1</b>
	<b>import</b>	316,3	287,7	306,2	368,5	443,5	537,1	703,2	947,6	1217,4	945,7	1018,6	<b>7091,9</b>
	<b>balance</b>	-103,6	-82,5	-75,1	-98,4	-74,4	-134,7	-185,7	-172,8	-120,4	-69,8	129,5	-987,9
<b>Poland</b>	<b>export</b>	230,2	262,5	300,6	394,9	662,3	1026,5	1382,9	1685,0	2220,0	2052,2	2197,0	<b>12414,0</b>
	<b>import</b>	120,9	145,9	182,5	246,2	496,6	763,2	909,7	1221,5	1418,6	1325,5	1499,2	<b>8329,8</b>
	<b>balance</b>	109,3	116,6	118,1	148,7	165,7	263,3	473,2	463,5	801,4	726,7	697,8	4084,2
<b>SR</b>	<b>export</b>	229,4	271,5	321,7	414,2	581,7	827,2	1035,4	1362,5	1469,3	1511,7	1629,3	<b>9653,9</b>
	<b>import</b>	334,8	403,0	502,0	509,6	743,2	1140,4	1317,9	1843,8	2469,1	2162,4	2571,8	<b>13997,9</b>
	<b>balance</b>	-105,4	-131,5	-180,3	-95,4	-161,5	-313,2	-282,5	-481,3	-999,8	-650,7	-942,4	-4344,1

Source: Comtrade, own processing, 2012

Table 10 Mutual goods flows in selected years in the period of 2000 – 2010 (Mil. USD)

Reporter	Partner	S3-00	S3-01	S3-02	S3-03	S3-04	S3-05	S3-06	S3-07	S3-08	S3-09	S3-11	S3-12	S3-41	S3-42	S3-43
Czech R.	Hungary	14,7	25,2	38,1	4,8	19,3	15,1	15,3	24,7	4,1	27,0	17,7	2,3	0,1	5,8	1,8
Czech R.	Poland	22,4	15,3	37,3	6,8	147,6	30,9	16,4	33,2	52,2	48,2	36,9	7,5	0,0	23,5	2,5
Czech R.	Slovakia	31,5	222,0	142,4	36,9	119,9	246,1	44,8	98,8	63,7	112,5	157,2	71,3	2,9	77,8	3,9
Slovakia	Czech R.	16,9	78,8	83,8	5,5	102,6	87,6	55,2	92,2	13,6	40,9	58,0	0,2	1,4	35,8	11,8
Slovakia	Hungary	56,4	89,7	90,3	2,9	94,3	44,1	171,1	48,2	12,9	20,7	8,3	1,4	8,6	11,4	12,1
Slovakia	Poland	19,8	16,5	7,1	0,4	97,8	11,6	40,5	35,9	13,8	15,0	5,7	0,0	0,7	7,5	0,3
Hungary	Czech R.	2,4	47,2	5,7	0,1	18,9	29,7	36,0	24,3	27,6	22,8	31,2	0,8	0,2	11,4	0,0
Hungary	Poland	1,9	20,4	14,0	0,9	39,9	68,4	16,8	17,9	47,7	13,5	13,1	3,2	0,7	7,0	0,0
Hungary	Slovakia	14,1	92,5	31,2	0,4	105,1	41,1	145,5	74,9	14,0	14,4	48,4	0,5	3,1	36,4	2,9
Poland	Czech R.	2,1	236,0	180,8	32,0	94,9	111,5	31,8	115,5	25,5	106,7	41,9	62,9	2,0	24,5	2,2
Poland	Hungary	33,8	93,5	98,8	12,9	49,3	35,9	22,2	57,9	16,1	55,3	35,4	86,4	6,5	6,1	0,6
Poland	Slovakia	0,5	112,9	101,3	11,3	41,7	43,9	28,9	35,7	30,4	35,1	23,9	35,7	2,6	11,8	0,3

Source: Comtrade, own processing, 2012

Table 11 LFI Index – Comparative advantages of agricultural trade among individual V4 countries at the level of individual aggregations representing agricultural trade

Reporter	Partner	S3-00	S3-01	S3-02	S3-03	S3-04	S3-05	S3-06	S3-07	S3-08	S3-09	S3-11	S3-12	S3-41	S3-42	S3-43
Czech Rep.	Hungary	2,9	-3,3	7,7	1,1	0,8	-2,2	-3,4	1,0	-4,4	1,8	-1,9	0,4	0,0	-0,8	0,4
Czech Rep.	Poland	1,9	-8,1	-3,9	-0,7	9,3	-1,7	0,2	-1,7	3,6	0,0	1,6	-1,8	-0,1	1,1	0,1
Czech Rep.	Slovakia	-0,1	1,7	-1,0	0,8	-2,9	1,9	-2,2	-2,9	1,1	0,8	1,1	2,2	0,0	0,1	-0,6
Slovakia	Hungary	3,1	-0,7	4,2	0,2	-1,4	0,0	1,1	-2,4	-0,2	0,4	-3,3	0,1	0,4	-2,1	0,7
Slovakia	Poland	3,2	-7,2	-7,7	-0,9	12,6	-1,9	4,2	2,8	-0,4	-0,6	-1,1	-3,1	-0,1	0,2	0,0
Hungary	Poland	-2,0	-3,2	-4,6	-0,8	2,9	8,4	1,1	-1,2	6,5	-1,7	-0,4	-5,5	-0,3	0,7	0,0

Source: Comtrade, own processing, 2012

advantage for 5 aggregations in relation to Poland (i.e. 19 out of 45 monitored flows). Polish agricultural trade in relation to the V4 countries achieves comparative advantages in the case of the Czech Republic for 8 aggregations, for 10 aggregations in the case of Slovakia, and for approximately 10 aggregations in the case of Hungary 10 (i.e. 28 out of 45 monitored flows). The Table 11 provides an overview of the detailed distribution of LFI index values, and the table and the above facts show why – despite the fact that some V4 countries do not have comparative advantages in terms of agricultural trade as a whole – the value of agricultural trade (including exports) is growing in the case of all of the monitored countries.

## Conclusions

On the basis of the above findings, it is shown that agricultural trade in the case of all of the countries of the Visegrad group represents only a marginal part of the total goods trade. Further, in regard to the agricultural trade of the individual analyzed countries, it may be stated that the commodity structure as well as the territorial structure is very significantly concentrated. The predominant majority of agricultural trade – export as well as import – is carried out in regard to the EU countries. Such countries participate in the agricultural trade of the individual countries of the V4 group at a rate of over 80%. Third countries represent only a marginal market in regard to the sale

of agricultural products from the V4 countries, and their position is slightly more significant in relation to agricultural imports primarily of tropical and subtropical products going onto the markets of the V4 countries.

In relation to the development of the commodity structure of agricultural trade, it may be stated that the volume and value of trade effected within the majority of goods aggregations is growing on a long-term basis in the case of all of the V4 group countries. Nevertheless, it is appropriate to state that the most dynamic growth in terms of the development of the value of effected trade in terms of the development of the value of effected trade in recent years was seen in the case of Poland. Czech and Slovak agricultural trade also showed considerable growth in terms of effected trade. A specific country in terms of the development of the commodity structure and the value of agricultural trade is Hungary. Its agricultural sector is in a long term structural crisis and this crisis heavily affected Hungarian agricultural export performance.

If we focus on the actual objective of the article which was to identify the comparative advantages of agricultural trade of the V4 countries in the area of commodity structure and territorial structure, both in relation to the global market, as well as in relation to the EU27 countries, and also in relation to the "own internal market" of the V4 group countries – all of which is for the purpose of ascertaining the most significant changes that occurred in the field of agricultural trade of the individual countries within the years of 2000 – 2010, the following may be stated. Agricultural trade of the Czech Republic, Slovakia and Hungary as a whole does not have comparative advantages either in the global market or in the internal market of the EU countries. However, Poland as the only representative of the V4 countries does have comparative advantages in the field of agricultural trade, both in relation to the internal market of the EU countries, as well as in relation to the global market (to the market of third countries). If we focus on the territory of the EU27 countries, which represents the main trade partner of all of the analyzed countries, both in terms of exports, as well as in terms of imports, it may be stated that although the Czech Republic, Slovakia and Hungary do not have comparative advantages in the area of agricultural trade in regard to the EU as a whole, they are capable of achieving comparative advantages at the level of bilateral relations with individual EU member countries. In terms of bilateral business competition, Poland and Hungary are of course in the best position. On the other hand, the Czech Republic and Slovakia are in the worst positions. If we focus further on the distribution of comparative advantages within the mutual trade of the V4 countries – we can state that Poland clearly dominates. Hungarian export is also capable of gaining comparative advantages in some years in relation to the market of the V4 countries. However, Czech and Slovak agricultural trade as a whole is profiled as uncompetitive within the whole space of the V4 countries. Nevertheless, it is appropriate to emphasize that although Czech and Slovak agricultural trade, in comparison with Hungarian and primarily Polish agricultural trade, appears to be uncompetitive, the value of both agricultural trade of the Czech Republic as well as the agricultural trade of Slovakia is constantly increasing, both in relation to effected exports, as well as in relation to effected imports. Primarily in relation to the growth of agricultural exports, it may be stated that the Czech Republic and Slovakia, although they do not have comparative advantages at the level of overall agricultural trade, are capable of gaining at least partial comparative advantages at the level of individual aggregations representing agricultural trade.

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