

The Competitiveness of Agricultural Foreign Trade Commodities of the CR Assessed by Way of the Lafay Index

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Anotace

Článek se zabývá agrárním zahraničním obchodem České republiky v období 2008 – 2011. Pro celou odvětvovou strukturu agrární produkce – 24 agregací komodit v členění podle kapitol potravinového zboží se snaží zjistit, jak se jednotlivé komodity na zahraničním trhu uplatňují. K ocenění konkurenceschopnosti uvádí několik nástrojů. Je to především Balassův pomocný ukazatel RCA zjevné konkurenční výhody (Revealed Comparative Advantage) a Lafay index. Využito bylo poslední nejkompaktnější kritérium – Lafay index. Pro uvedená léta je nejdříve věnována pozornost celkovému vývoji agrárního zahraničního obchodu (AZO), je shrnuta hodnota exportu a importu, spočteno saldo, obrat. Ukázána je teritoriální struktura, sledován je celkový vývoz, vývoz do zemí EU 27, do tří zemí, které jsou největšími obchodními partnery (Německo, Slovensko, Polsko) a do třetích zemí. Pro poslední rok 2011 jsou výsledky pro agregace komodit, které se na daném trhu uplatňují, zpracovány do přehledných tabulek, ukázáno je pořadí prvních pěti agregací komodit. Stručně jsou uvedeny výsledky pro rok 2008, diskutovány jsou změny struktury, ke kterým za poslední čtyři roky došlo.

Klíčová slova

Agrární zahraniční obchod, zahraniční obchod, konkurenceschopnost, konkurenční výhoda, Balassův index, Lafay index.

Abstract

The article deals with agricultural foreign trade of the Czech Republic in the period of 2008 – 2011. For the whole sector structure of agricultural production – 24 aggregations of commodities structured according to chapters of food goods - it attempts to ascertain how the individual commodities are faring on the foreign market. It presents several tools for the assessment of competitiveness. Primarily, this includes the Balassa auxiliary RCA (Revealed Comparative Advantage) index, and the Lafay index. The last, most comprehensive criterion was utilized – the Lafay index. For the years in question, attention is first given to the overall development of agricultural foreign trade (AFT), the value of export and import is summarized, and the balance and turnover is calculated. The territorial structure is shown, total export is studied, as well as export into the EU 27 countries, into the three countries that are the biggest trading partners (Germany, Slovakia, Poland) and into third countries. For the last year, 2011, the results for the aggregations of commodities that show up on the given market are processed into clear tables, with the order of the first five aggregations of commodities being shown. The results for the year 2008 are set out briefly, and changes in the structure that occurred within the past four years are discussed.

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Key words

Agrarian foreign trade, foreign trade, competitiveness, competitive advantage, Balassa index, Lafay index.

Introduction

Foreign trade (FT) is among the decisive factors affecting economic growth of individual countries, as well as of the whole world economy. Foreign

trade has an effect on the creation of internal economic balance (transformational function), and has a share in the international division of labor with the resulting effect of saving national labor and resources (growth function). (Jeníček, Krepl,

2009). Agricultural trade is an important part of the global merchandise trade. Despite of its low share in global trade value, it plays an important role in global human society development (Proudman, Redding, 2000).

Agricultural foreign trade (AFT) within the conditions of the Czech Republic represents only about 5% of the total Czech foreign trade turnover value. A characteristic feature of the commodity and territorial structure of Czech agricultural trade is its relatively narrow diversity (Svatoš, Smutka, 2012a). Czech agrarian trade is concentrated especially on EU market. The EU members' share in Czech agrarian export and import is 92% respectively 85%. The high concentration of Czech agrarian trade is also visible in case of commodity structure development. The most important six commodity aggregations' share in Czech agrarian export (CN 04, CN 10, CN, 21, CN 22, CN 24 and CN 19) and import (CN 02, CN 04, CN 08, CN 21, CN 22 and CN 07) is about 50% (Svatoš, Smutka, 2012b). In view of the securing of food commodities, there cannot be doubt about Czech agrarian trade important position both from the export and import point of view. Agricultural trade enables to the Czech Republic to consume many types of commodities and foodstuff products which cannot be produced in local conditions. It also provides to Czech farmers and producers a the possibility to penetrate other countries' markets and for the Czech consumers foreign trade represents a possibility to have an access to many different types of products for reasonable prices (Vološin, Smutka, Selby, 2011).

The Czech AFT balance is negative on a long-term basis; within recent years, the percentage of coverage of agricultural import by export has been ranging between 75% and 82%. Despite of high value of Czech agrarian trade balance, it should be mentioned that the value of agrarian trade is constantly growing and in period before the global crisis (2000 – 2008), the export year-on-year growth rate was even higher in comparison with agrarian import value year-on-year growth rate (Svatoš, Smutka, 2009). In general, the period after the Czech EU accession is characterized by a significant increase in the volume as well as the value of export and import (Bašek, Kraus, 2009).

Within recent years, on a national as well as multinational level, increasing attention is being placed on matters of competitiveness. Successfulness in foreign trade activity is one of the gauges of the successfulness of the given sector

as well as of the entire national economy. For the given aggregation of commodities, the assessment of competitiveness is usually conducted on the basis of easily ascertainable, quantifiable data by way of the utilization of certain recommended indicators. The Czech agrarian trade does not have a comparative advantage both in the EU market and world market. Nevertheless individual segments of Czech agrarian trade are able to get comparative advantage in relation to individual countries (Smutka, Belova, 2011). The processed paper analyses the comparative advantage of Czech agrarian export in relation to selected partners. The own analysis is concentrated especially on comparative advantage development during global economy crisis period (2008 – 2011).

Objective, material and methods

The objective of the work is to identify changes in the AFT of the Czech Republic that occurred within the past four years; and, with the utilization of the chosen indicators, to illustrate for the entire structure of agricultural trade (24 commodity chapters – for details see Tab. 1) - how the individual commodities (the analysis is concentrated especially on the most important commodities) are prospering on the European market. The main idea is to analyze the impact of crisis on Czech agrarian trade comparative advantage development in relation to selected trade partners. The Czech statistical office foreign trade database and the Institute of agricultural economics and information are the main data sources.

The said matter is dealt with within the research project Economics of Resources of Czech Agriculture and Their Effective Utilization within Multifunctional Agricultural-Food Systems, No. MSM 6046070906, PEF ČZU material phase no. 4. The work analyzing the effectiveness of agricultural production in terms of assertion on the foreign market is dealt with in section 4.8 – “Competitiveness of Agricultural Foreign Trade of the Czech Republic and Its Effect on the Economic and Social Development of Rural Areas”.

Utilization of RCA and LFI Indexes

A gauge of the competitiveness of individual agricultural foreign trade commodities of the Czech Republic can be the net export of the given economy in relation to the total turnover of the given commodity or the total turnover of agricultural trade. Applicable for this is, for example, the auxiliary RCA index – the index of revealed comparative advantage. The RCA concept

CN 01	Live animals
CN 02	Meat and edible meat offal
CN 03	Fish and crustaceans, molluscs and others
CN 04	Milk and dairy produce
CN 05	Products of animal origin, not elsewhere specified
CN 06	Live trees and other plants
CN 07	Edible vegetables and certain roots and tubers
CN 08	Edible fruit and nuts
CN 09	Coffee, tea, mate and spices
CN 10	Cereals
CN 11	Products of the milling industry, malt, starches, etc.
CN 12	Oil seeds and oleaginous fruits
CN 13	Lac, gums, resins and other vegetable saps and extracts
CN 14	Vegetable plaiting materials
CN 15	Animal or vegetable fats and oils
CN 16	Preparations of meat, of fish or of crustaceans
CN 17	Sugars and sugar confectionery
CN 18	Cocoa and cocoa preparations
CN 19	Preparations of cereals, flour, starch or milk bakers' wares
CN 20	Preparations of vegetables, fruit or nuts
CN 21	Miscellaneous edible preparations
CN 22	Beverages, spirits and vinegar
CN 23	Residues and waste from the food industries
CN 24	Tobacco and manufactured tobacco substitutes

Source: Czech Statistical Office, 2012

Tab. 1. The list of aggregations representing the commodity structure of agrarian and food trade.

was expressed by its author (Balassa, 1965, 1985):

$$RCA_j = (X_j - M_j) / (X_j + M_j) 100$$

X_j and M_j ... values of export and import of agricultural foreign trade of a j-th commodity into the given area. RCA indices can be determined for aggregations of commodities, as well as for a more detailed sector structure of agricultural production.

Competitive commodities can be considered to be those that achieve stable high positive RCA index values within the analyzed period. Commodities with a non-competitive position on the market can be assessed as those whose RCA index values range in highly negative numbers on a long-term basis.

The author of the concept of RCA (Balassa, 1977) also proposed the index of revealed comparative advantage in the form of a ratio. RCA 1 is defined as

$$RCA 1_j = (X_j / M_j) / (X / M)$$

X_j and M_j ... values of export and import of agricultural foreign trade of a j-th commodity

X and M ... total value of export and import of

agricultural foreign trade for all 24 chapters of basic food goods.

For the assessment of the results of RCA 1 indexes, it applies that if the value of the RCA1 index of an analyzed commodity regularly ranges above the number one, such a commodity can be considered to be competitive. On the other hand, a commodity with a RCA 1 index value under the number one is a non-competitive commodity.

The revealed comparative advantage indices are often utilized not only for the assessment of the competitiveness of a selected commodity on the foreign market, but also for the comparison of the competitive advantage for the selected product exported from various production regions (Nin, A., Ehui, S., Benin, S., 2007). The utilization of these indicators (RCA and RCA1) is also documented in (Burianová, 2005; Qineti et al., 2009). According to some already published papers (Burianová, 2008; Smutka, Belova, 2011) analyzing AFT data through the utilization of the RCA index, as well as the RCA1 index - the order of commodities with the highest values (both RCA and RCA1) was

completely identical; both indexes apparently have the same statement value.

The RCA and RCA1 indices represent very simple way of comparative advantage analysis. They are analyzing country's trade competitiveness at the global level. It takes in consideration not only trade flows realized between analyzed country and its partners, but they are taking also in consideration global market trade performance. If we are interested in analyzing of bilateral trade comparative advantage distribution (country's comparative advantage development in relation to its trade partners), it is better to apply Lafay index. 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. 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, 2003).

Lafay index LFI (Lafay, G. 1994) defined as

$$LFI_j^i = \left(\frac{X_j^i - M_j^i}{X_j^i + M_j^i} - \frac{\sum_{j=1}^N (X_j^i - M_j^i)}{\sum_{j=1}^N (X_j^i + M_j^i)} \right) \frac{X_j^i + M_j^i}{\sum_{j=1}^N (X_j^i + M_j^i)} 100$$

where:

x^ij and m^ij 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.

If we mark the individual elements of this relationship

$$LFI_1 = \frac{X_j^i - M_j^i}{X_j^i + M_j^i}$$

$$LFI_2 = \frac{\sum_{j=1}^N (X_j^i - M_j^i)}{\sum_{j=1}^N (X_j^i + M_j^i)}$$

$$LFI_3 = \frac{X_j^i + M_j^i}{\sum_{j=1}^N (X_j^i + M_j^i)}$$

it is apparent that

$$LFI = (LFI_1 - LFI_2) LFI_3 \cdot 100$$

The first element LFI_1 measures the net export for the given commodity by way of the turnover for such commodity; this is the well-known Balassa RCA index.

The second element LFI_2 compares the total net export (the sum for all commodities) to the total turnover. The parenthesis has a positive value if $LFI_1 > LFI_2$ i.e. the RCA (revealed comparative advantage) index of the given commodity is greater than the RCA assessed as the sum for all commodities.

The third element LFI_3 adjusts the value of the parenthesis; it expresses what share the given commodity has in the total turnover.

The positive value of the LFI index indicates existence of a comparative advantage within the analysed traded aggregation or a group of aggregations in question. And vice versa, the negative value of the LFI index signals that specialization and hence comparative advantages are lacking (Zaghini, 2005).

Results and discussion

Development of the AFT of the Czech Republic

For the analyzed time period, 2008 – 2011, attention is first focused on the overall development of AFT value. For the 24 aggregations of commodities segmented according to CN chapters (for details see Tab. 1), the value of export and import was summarized, and the balance and turnover was calculated. The results are in Tab. 2.

The AFT results within the years 2008 – 2009 were affected by the overall stagnation of the national economy as a result of the world economic crisis (crisis affected the majority of world economy sectors), which the European area did not manage to avoid. Czech agrarian export reduced its value about cc 5.2 bill. CZK and import reduced its year-on-year growth rate below the previous ten years average. In 2010, there was a certain recovery of the economy of the Czech Republic, but a significant improvement in the parameters of export in the area of agriculture did not come until 2011, when, compared with the year 2010, AFT value turnover increased by CZK 30.8 billion (both Czech agrarian export and import increased their values by more than 15 bill. CZK). The increase in export was 14.6% and the value of import increased

/CZK mil./	2008	2009	2010	2011
Export	106 931.0	101 707.7	105 364.2	120 725.4
Import	131 048.0	133 735.2	140 007.8	155 466.2
Balance	-24 117.1	-32 927.5	-34 643.6	-34 740.8
Turnover	237 979.0	235 442.9	245 372.1	276 191.6

Source: ÚZEI, own processing

Tab. 2. AFT within the Years 2008 - 2011.

Turnover /mil. CZK/	2008	2009	2010	2011
Total	237 979.0	235 442.9	245 372.1	276 191.6
EU 27	218 205.6	222 027.4	215 805.8	242 747.5
Germany	57 072.2	57 514.5	56 297.0	59 089.7
Slovakia	42 267.6	41 011.1	43 236.4	46 630.3
Poland	28 922.6	30 070.8	30 845.4	36 547.8
Third countries	18 315.7	16 570.6	29 566.2	33 444.2

Source: ÚZEI, own processing

Tab. 3. Territorial Structure of the AFT Turnover of the Czech Republic.

by 11% (the highest year-on-year growth rate of export value in comparison with import value was the positive feature of the year 2011). Taking in consideration the Czech AFT value development during the whole period, it can be seen that the world economy crisis did not affect Czech AFT seriously. The pro-growth AFT value development was interrupted only in 2009, but during the whole analyzed period the average value of year-on-year export and import growth rate reached the following results 4.1%/year respectively 5.9%/year. The problem of the whole monitored time period is higher year-on-year growth rate of imports in comparison with exports. It resulted in significant growth of Czech AFT negative balance.

A significant part of the turnover in agricultural trade is created with EU countries. As Tab. 3 shows (it contains summarizing information regarding territorial structure) in 2011, trade with the EU 27 countries comprised 87.9% of the total turnover, 51.5% with third neighboring countries, of which 21.4% was with Germany, 16.9% with Slovakia, and 13.2% with Poland, and 12.1% with third countries. During the analyzed time period the share of third countries (all trade partners without EU members) in total Czech AFT turnover value increased from 7.7% to more than 12%, on the other hand the share of EU 27 members declined from 91.7% to about 88%. If we take in consideration the share of the Czech most important agrarian trade partners development, it can be seen the share of Poland increased by 1.1% and the shares of Germany and Slovakia decreased by about 1%. In general, it is

possible to say that the impact of crisis on Czech AFT in relation to main trade partners was very limited.

A further section focuses on the analysis of the structure and especially competitiveness of agricultural trade within the last analyzed year, i.e. 2011; the structure of AFT is briefly compared to the situation in 2008. In view of the territorial structure, we will focus on total trade, trade with EU 27 countries, trade with the three largest partners (Germany, Slovakia and Poland) and trade with "third countries".

Utilization of the LFI Index

In 2011, the competitiveness of AFT for the 24 aggregations of commodities segmented according to CN chapters was assessed with the utilization of the LFI index. The Czech AFT as a one category does not have comparative advantage in relation to all trade partners (all trade partners are taken as a one big group), but if we are analyzing individual AFT components' (aggregations) competitiveness, we can see that at least some aggregations are able to get comparative advantage in relation to global market. The results in Tab. 4 are shown as values of the overall index and its partial elements for the best five commodities. The ascertained order shows the following: the aggregation of commodities CN 10 (cereals) distinctly has the best pro-export position in overall trade; CN 4 (milk and dairy products) is in the second place. The others (the most important aggregations) are the following: CN 01 (live animals), CN 24 (tobacco and manufactured

CN	LFI ₁ (RCA)	LFI ₂	LFI ₃	LFI Overall	LFI Order Overall
10	0.6738	-0.1258	0.0515	4.1144	1
04	0.1343	-0.1258	0.1030	2.6797	2
01	0.5220	-0.1258	0.0274	1.7748	3
24	0.1807	-0.1258	0.0528	1.6186	4
17	0.1457	-0.1258	0.0397	1.0771	5

Source: ÚZEI, own processing

Tab. 4. LFI Index - 2011 Overall .

CN	LFI ₁ (RCA)	LFI ₂	LFI ₃	LFI Overall	LFI Order Overall
10	0.7050	-0.0873	0.0565	4.4796	1
24	0.2617	-0.0873	0.0552	1.9255	2
04	0.0649	-0.0873	0.1076	1.6385	3
01	0.4684	-0.0873	0.0276	1.5357	4
17	0.1103	-0.0873	0.0407	0.8041	5

Source: ÚZEI, own processing

Tab. 5. LFI Index - 2011 EU 27.

tobacco substitutes), and CN 17 (sugar and sugar confectionery).

It is worth noticing the fact that this order of commodities is not identical to the order that is given by the value of the LFI1 (RCA) index. The structure of export four years ago, in 2008, was analogous to the year 2011. In general, the same commodities dominated the list of the most competitive aggregations. The order of the first chapters was as follows: CN 04 (milk and dairy products), CN 12 (oil seeds and oleaginous fruits), CN 10 (cereals), CN 24 (tobacco and manufactured tobacco substitutes) and CN 01 (live animals). The only significant difference existing between the years 2008 and 2011 is competitiveness decreased in the case of CN 12.

If we want to analyze the Czech AFT competitiveness, it is necessary to analyze separately trade in relation to EU market and trade in relation to third countries. Trade in relation to EU is affected by the existence of EU common market and trade in relation to third countries is affected by EU Common trade and agricultural policies (there are also the EU's obligations in relation to WTO – for details see for example Svatoš, Smutka, 2011; Vološin, Smutka, Selby, 2011). The pro-export position of commodities in trade with the EU 27 countries is shown in Tab. 5.

In view of the fact that a significant part of agricultural trade is conducted with EU 27 countries, significant deviations from Tab. IV cannot be expected. The first five places are held

by the same commodities; only commodity CN 24 (tobacco and manufactured tobacco substitutes) moved to a second place ranking in terms of trade with the EU 27.

In 2008, the structure of trade with the EU 27 was in the following order of chapters: CN 10 (cereals), CN 12 (oil seeds and oleaginous fruits), CN 24 (tobacco and manufactured tobacco substitutes), CN 04 (milk and dairy products), CN 01 (live animals). If we compare the years 2008 and 2011, it can be seen that CN 12 left the top ten list of the most competitive aggregations and it was replaced by CN 17. It should be highlighted that the year 2011 was the first year after the crisis when the significant growth of AFT value in relation to EU 27 was recorded. In 2011, Czech agricultural export into EU 27 countries increased (in comparison with the previous year) its value by 14.9%, and import increased by 10.6%. The negative balance of Czech agricultural trade in relation to EU 27 decreased by 1.7 billion CZK.

The largest partner in foreign trade as well as in AFT on a long-term basis is Germany. Tab. 6 shows the order of the first five the most competitive commodities according to assessment by way of the LFI index.

In the first place, with a substantial interval, is the aggregation CN 10 (cereals). The subsequent ranking is occupied by CN 04 (milk and dairy products), the third place is held by a specific commodity group for trade with Germany - CN 12 (oil seeds and oleaginous fruits). The fourth place

CN	LFI ₁ (RCA)	LFI ₂	LFI ₃	LFI Overall	LFI Order Overall
10	0.9384	-0.1807	0.1205	13.4834	1
4	0.0358	-0.1807	0.1590	3.4428	2
12	0.3515	-0.1807	0.0518	2.7551	3
1	0.3164	-0.1807	0.0247	1.2286	4
22	0.0394	-0.1807	0.0450	0.9913	5

Source: ÚZEL, own processing

Tab. 6. LFI Index - 2011 Germany.

CN	LFI ₁ (RCA)	LFI ₂	LFI ₃	LFI Overall	LFI Order Overall
16	0.8881	0.4798	0.0504	2.0587	1
02	0.6869	0.4798	0.0935	1.9361	2
24	0.9991	0.4798	0.0270	1.4000	3
07	0.7104	0.4798	0.0464	1.0699	4
23	0.7609	0.4798	0.0354	0.9947	5

Source: ÚZEL, own processing

Tab. 7. LFI Index - 2011 Slovakia.

is occupied by commodity CN 01 (live animals), and the fifth analyzed place is held by commodity CN 22 (beverages, spirits and vinegar). In 2008, the following aggregations reached comparative advantage in trade with Germany: CN 10 (cereals), CN 12 (oil seeds and oleaginous fruits), CN 04 (milk and dairy products), CN 22 (beverages, spirits and vinegar), and CN 01 (live animals). They were the same commodities as in 2011, with only the order being slightly modified.

The second most important Czech AFT partner is Slovakia. Slovak republic is very important for the Czech Republic especially because of positive agrarian trade balance. Slovakia is for the Czech important the most important export partner and it must be highlighted, that Czech agrarian export is much more competitive in relation to Slovakia than it is visa verse (for details see Smutka, Svatoš, 2010). Specific distribution of comparative advantages in agricultural trade with Slovakia is documented in Tab. 7. The first place is held by CN 16 (preparations of meat, of fish or of crustaceans), in the second place is CN 02 (meat and edible meat offals). The third place was occupied by commodity CN 24 (tobacco and manufactured tobacco substitutes). The next commodity is CN 07 (edible vegetables and certain roots and tubers), and in the fifth place is CN 23 (residues and waste from the food industries).

In 2008, the following commodities fared well in trade with Slovakia: CN 16 (preparations of meat, of fish or of crustaceans), CN 02 (meat and edible

meat offals), CN 23 (residues and waste from the food industries), CN 22 (beverages, spirits and vinegar) and CN 24 (tobacco and manufactured tobacco substitutes). In 2011, CN 22 (beverages, spirits and vinegar) was no longer among the highest ranked categories – its position among the five the most competitive aggregations took CN 07.

Poland is the third the most active Czech agrarian trade partner. The mutual agrarian trade balance is negative for the Czech Republic. After the EU accession Polish export on Czech market started to grow its value. The average inter annual growth rate of Polish exports on Czech market is much higher in comparison with Czech exports on Polish market (Svatoš, Smutka, 2012b). Only in the period 2008 – 2011, the Czech agrarian exports and imports on Polish market recorded the following average values of year-on-year growth rate (geomean): 3.5% respectively 11.1%. Czech agrarian export in relation to Poland has only limited comparative advantage. Nevertheless some aggregations are able to get a good competitive position in trade with Poland (Tab. VIII includes the list of top five the most competitive aggregations). In the first place is the aggregation CN 10 (cereals), in the second place is CN 11 (products of the milling industry, malt, starches, inulin), in the third place is CN 23 (residues and waste from the food industries). The subsequent ranking is held by CN 15 (animal or vegetable fats and oils), and the fifth place is occupied by CN 01 (live animals).

In 2008, the following commodity chapters fared

CN	LFI ₁ (RCA)	LFI ₂	LFI ₃	LFI Overall	LFI Order Overall
10	0.8702	-0.2791	0.0629	7.2324	1
11	0.8357	-0.2791	0.0315	3.5125	2
23	0.2966	-0.2791	0.0498	2.8667	3
15	0.0619	-0.2791	0.0734	2.5039	4
01	0.7953	-0.2791	0.0157	1.6825	5

Source: ÚZEI, own processing

Tab. 8. LFI Index - 2011 Poland.

CN	LFI ₁ (RCA)	LFI ₂	LFI ₃	LFI Overall	LFI Order Overall
04	0.9148	-0.4048	0.0695	9.1725	1
01	0.9413	-0.4048	0.0257	3.4556	2
12	0.3034	-0.4048	0.0421	2.9803	3
17	0.4692	-0.4048	0.0323	2.8253	4
22	-0.1271	-0.4048	0.0813	2.2567	5

Source: ÚZEI, own processing

Tab. 9. LFI Index - 2011 Third Countries .

well in trade with Poland: CN 10 (cereals), CN 11 (products of the milling industry, malt, starches, inulin), CN 12 (oil seeds and oleaginous fruits), CN 23 (residues and waste from the food industries), and CN 01 (live animals). If we compare the results for the year 2008 with the results for the year 2011, we can see that in top five the most competitive aggregations the aggregation CN 12 was replaced by CN 15. In this case should be mentioned that aggregation CN 12 did not lose its comparative advantage, only the value of LFI index was reduced from 3.647 to about 1.478. The aggregation CN 15 was able during the last four years to improve its competitiveness. While in 2008 the value of LFI index was about minus 1.5, in 2011 LFI index value was highly positive about plus 2.5.

Except for the EU market the Czech Republic is realizing its agrarian trade in relation to non-EU members – third countries. During the last decade the importance of third countries as trade partners was decreasing. Their share in Czech AFT was reduced especially after the Czech EU accession. Nevertheless within the period 2008 - 2011 Czech AFT with third countries had an increasing tendency. In 2011, it was 12.1% of total AFT, while in 2008 it was only 7.7%. It should be mentioned that the Czech Republic has extremely negative trade balance in relation to third countries. Trade with third countries is represented especially by imports of tropical and subtropical products and commodities mainly from developing countries. Czech agrarian trade competitiveness in relation to

this group of countries is very low (for details see Vološin, Smutka, Selby, 2011). The list of the most competitive aggregations is in Tab. 9.

The order of commodities in 2011 was as follows: CN 4 (milk and dairy products), CN 1 (live animals), CN 12 (oil seeds and oleaginous fruits), CN 17 (sugars and sugar confectionery), and CN 22 (beverages, spirits and vinegar). In 2008, the list of top five the most competitive aggregations was the same, with only the order being slightly modified.

Conclusion

The accession of the Czech Republic into the EU in 2004 meant significant changes for AFT (Svatoš, Smutka, Miffek, 2010). In the subsequent years, the value of agricultural export turnover increased significantly. While the total turnover was at a level of CZK 155 billion in 2004, in 2008 it was CZK 237.9 billion and last year, in 2011, it was up to CZK 276.2 billion.

The structure of exported commodities also changed. In order to assess which commodities are competitive, and/or which ones show a certain level of specialization in export, specific indicators can be utilized. These can include the Balassa revealed comparative advantage (RCA) or Lafay index (LFI). For the year 2011, the LFI index value was calculated for all 24 chapters representing Czech agrarian foreign trade. The LFI index was calculated for trade with EU countries (especially trade with Germany, Slovakia, and Poland was analyzed in

detail) and third countries, and the order of highest LFI index values was determined. In 2011, in terms of the values of the LFI index, the following commodity aggregation chapters fared the best: CN 10 (cereals), CN 04 (milk and dairy products), CN 24 (tobacco and manufactured tobacco substitutes), CN 17 (sugars and sugar confectionery), CN 01 (live animals). In trade with Germany, the aggregations CN 12 (oil seeds and oleaginous fruits) and CN 22 (beverages, spirits and vinegar) are also in good competitive position. Some specific commodities and aggregations are also successful in trade with Slovakia and Poland (CN 16 - preparations of meat, of fish or of crustaceans, CN 02 - meat and edible meat offals, CN 07 - edible vegetables and certain roots and tubers, CN 15 - animal or vegetable fats and oils, CN 23 - residues and waste from the food industries).

In relation to the main aim of this paper it can be stated, that the analyzed time period affected Czech AFT value and structure development only minimally. The impact of crisis on competitiveness

of Czech agrarian export was only minor. The main aggregations were able to keep their comparative advantages both in relation to EU 27 market and third countries' market. Also the Czech agrarian export competitiveness in relation to main trade partners (Germany, Slovakia and Poland) was not significantly affected by the global economy crisis.

The presented results show that the selected indicators can serve as appropriate tools for the analysis of foreign trade, and the conducted analyses can be useful information regarding the opportunities for the success of selected commodities on foreign markets.

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