

# Analysis of the external and internal influences on the CR agrarian foreign trade

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**Abstract:** The agrarian sector has a non-substitutable position in most world economics – including the CR. From the viewpoint of functioning of own agrarian trade it can be stated that the CR is roughly self-sufficient by 70–80% in products of a competitive nature. In case of products of a non-competitive nature, the CR shows almost zero self-sufficiency. It means that agrarian foreign trade occupies a non-substitutable position in the CR economy (at least from the export point of view). In the light of our own trade flows, the CR performs as an active exporter and importer (about 100 billion and 130 billion CZK respectively, in 2009). However, together with the still growing needs of the national economy and the inhabitants' requirements for a varied composition of agri-food products, the CR does not succeed in the long term to decrease the negative balance of the agrarian foreign trade. It is, however, indisputable that if a serious discussion should be held about the competitiveness of Czech agriculture in confrontation with foreign producers or suppliers of agricultural and food products, the priority task to reach a balanced agrarian foreign trade balance can be accepted only for the competitive products segment. The complexity of a greater participation of the basic Czech agricultural and food products on the EU unified market deepens simultaneously with the acceleration of the liberalisation process on this market. The gradual process of the world agrarian market liberalisation then means that the cost and price relationships are determined by such world producers as are able to offer agrarian products for the most advantageous prices, or offer goods of exceptional quality, with a high added value, brand products, national specialties and so on. Potentially, the space for improvement of the active balance of agrarian foreign trade (AFT) is given to us in much the same way as to our competitors, but actually, our possibilities are limited. The stagnation or even growth of the negative AFT balance was, and is influenced by non-substitutable imports of non-competitive food raw materials and foodstuff products and many other raw materials required by the non-agricultural sectors of the national economy.

**Key words:** agrarian market, export, import, balance, territorial and commodity structure

Foreign trade is historically the oldest and still an important part of external economic relations. Its influence on economic development of particular countries has clearly showed itself, especially during the whole period since the World War II. In recent decades, the development of foreign trade is among the most dynamic elements of the world economy (Jeníček 2009).

The agrarian sector is one very significant aspect of the world economy development from the viewpoint of production and trade, influencing the development of the world economy and society. The international agrarian market has been under the influence of many factors in the last several decades – both temporarily and in the long term (OECD-FAO 2007).

Agrarian trade is a significant magnitude influencing not only the current development of world agriculture, but also the world economy and society. However, it must be mentioned that the world trade with agricultural and food commodities represents only a fraction of the real agrarian production (apart from certain specific commodities, more than 90% is consumed in the countries of origin).

At present, agrarian foreign trade has a non-substitutable role in every economy regardless of its maturity. It is impossible to imagine any working economy without a high-quality functioning agrarian market (Tvrdouš 2000).

Agrarian markets have many significant specifics:

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- (a) time delay and in most products a low supply, price and income demand elasticity (Tomek and Willard 1962);
- (b) at times a more or less steady demand for foods, while the supply of agricultural production is characterized by cyclical, periodicity and seasonality (Fernández 2002);
- (c) a limited and cost-demanding storability of most of agricultural and food products (Binoy and Thomas 2008);
- (d) climatic conditions can modify the working of market signals (the stimulating function of price for demand increase can be supported, limited, or even negated by weather conditions. On the other hand, within low prices, favourable weather can maintain a predominance of supply over demand) (Mendelsohn and Dinar 2003);
- (e) only a limited responsibility of agricultural producers for the production of non-contaminated agrarian products which are suitable for human healthy nutrition (Coye 1985);
- (f) a low cost elasticity of agricultural enterprises resulting from their generally unfavourable economic situation and their dependence on the price level, quality and time availability of industrial inputs (Hayami and Godo 2004);
- (g) the idea of food safety, which is crucial for many countries, has been significantly affecting the agrarian product trade (Wilson and Otsuki 2003).

## AIM AND METHODOLOGY

The aim of this paper is a development analysis of the agrarian foreign trade (AFT) of the CR and the delimitation of basic internal and external factors affecting changes on the international and Czech agrarian market. From the methodology point of view, the article is divided into several parts focused on an analysis of the particular important factors influencing the agrarian market and trade development both at the global and regional levels. The opening part of the paper is devoted to a basic description of international agrarian market development and the CR position on the international market is characterised.

A considerable part of this contribution is focused on the analysis of the long-term tendencies and basic factors influencing the development and structure of the international agrarian market. Particular parts

of the evaluation are carried out with the intention of predicting the consequences of the cumulative influence of these factors on the development of the international agrarian market. In the conclusion, on the basis of the analysis, the authors point out the expected changes on the international agrarian market and the possibilities of the CR adaptation to these changes. From the time point of view, the analysis includes the period 1961–2008/2009. However, because of the inaccessibility of the older data, some selected factors are evaluated over a shorter period (the analysed interval different from the basic time series 1961–2008/2009 is always presented separately).

From the territorial viewpoint, the development of world agriculture is analysed on the global, regional (Africa, Asia, Europe, North America, Latin America, Oceania) and in some cases also at the sub-regional levels (particular regions in continents classification according to the UN). The evaluation is focused on the quantification of different developments of the selected factors in the particular main regions, and it is performed by the means of basic statistical-mathematical indicators (arithmetical and geometrical means, chain and basic indices).

The analysis of agrarian production and trade is calculated both in amount and value units (usually USD). All data are presented in current prices. As non-competitive commodities, the products are ranked which a given country is not able to secure from its own resources owing to the given natural conditions.

Besides the quantitative evaluation of the agrarian sector position in the particular world regions, characteristics of competitiveness of agrarian trade of the particular world regions in the global market are also processed. The analysis is based on the modified Ballasa (1965) index<sup>1</sup> (the methodology is explained later in this article) of the revealed comparative advantage in the own export structure of commodities (RCA) and the revealed comparative advantage in the global market (RCA 1). The original RCA index was developed for the analysis of the comparative advantage structure. The original RCA index was developed for measuring the degree of the country's specialization in the individual industries through data on the international trade in goods (Hisanaga 2007). Because competitiveness contains various concepts such as establishing a global standard, developing

<sup>1</sup>The idea to determine a country's 'strong' sectors by analyzing the actual export flows was pioneered by Liesner (1958). Since the procedure was refined and popularized by Bela Balassa (1965) it is popularly known as the Balassa Index. Alternatively, as the actual export flows 'reveal' the country's strong sectors it is also known as *Revealed Comparative Advantage*.

new technology, products or a comprehensive business environment, it is ambiguous, and a narrower interpretation is needed. In this context, the terminology applies to the degree of export competitiveness within a sector. In this study, the competitiveness of the individual agricultural aggregations is interpreted as the degree of comparative advantage within the agricultural sector (the EU level and world level), and the RCA is also used as the index of competitiveness. Recently, many authors used the RCA index for examining the patterns of international trade (e.g., Proudman and Redding 2000; Hinloopen and Marrewijk 2001, 2006).

Data for calculation of the RCA and RCA 1 indices come from the UN Comtrade database, and are ranked according to the SITC nomenclature rev. 3 from 2002 (this methodology classifies the agrarian trade in 44 aggregated groups).

In the final part of the paper, the authors carry out a synthesis of results of the particular analysis resulting in the estimation of the future development of the global agrarian market and the impacts of the possible development on the Czech agrarian market. As an information source for this paper, the USDA (United States Department of Agriculture), OECD, FAO, WTO, CSO (Czech Statistic Office), ÚZEI (Institute of Agricultural Economics and Information), WB (World Bank), UN (United Nations) – Comtrade, Eurostat etc. databases were used.

## RESULTS AND DISCUSSION

### Development and position of agrarian trade in the world

The general value of world agrarian trade turnover as well as the volume of the traded commodities in the last few decades has increased very significantly (Figure 1).

At present, this value exceeds 1 billion USD (data from 2008). Despite the constant growth of the world agrarian trade value, the importance of the world agrarian product trade in comparison with the trade of products from other branches of the world economy has recorded a very significant decrease. While at the beginning of the 1960s, the share of turnover of agrarian product trade in the total world trade turnover was at the level of 25%, at present it is only about 8% (Kraus et al. 2006).

Agriculture and agrarian trade have a direct impact on the level of living of many people, and its importance for the human society development increases, especially in the newly industrialised and developing regions of the world. In developing countries about 50% of the economically active population works in the agrarian sector (FAO 2009).

From the viewpoint of real flows of the agrarian and food products in the world, the biggest exporter of agrarian products is Europe, in the long term par-

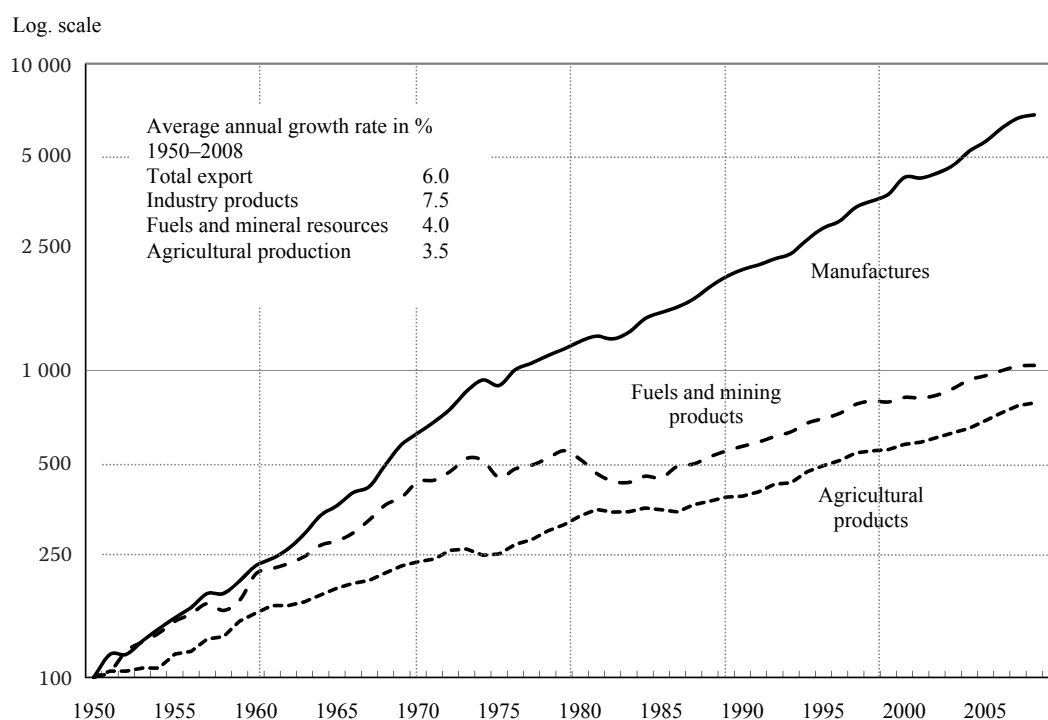


Figure 1. Development of trade volume compared to other branches of the world economy during 1950–2008 (index, 1950 = 100)

Source: International Trade Statistics 2009

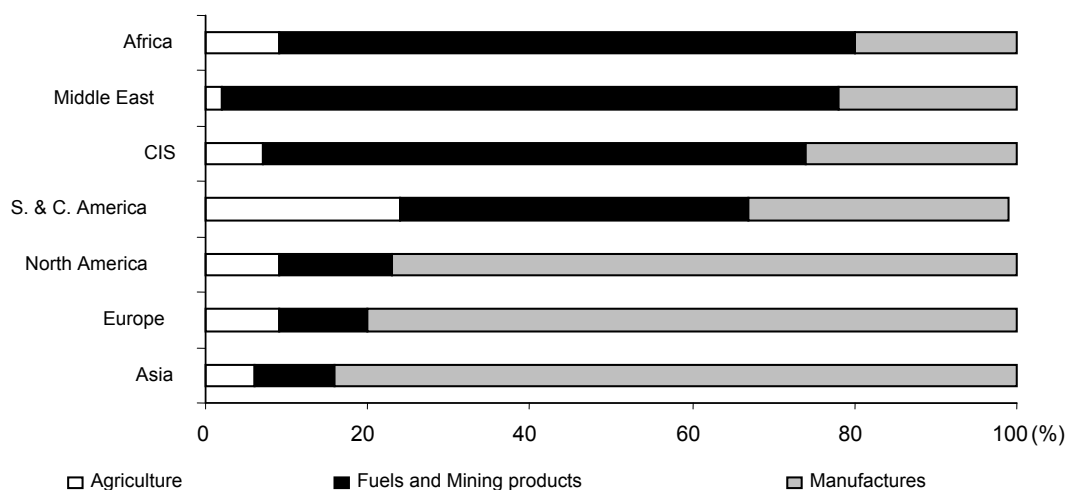


Figure 2. Commodity export structure in selected regions of the world (2004–2008)

Source: International Trade Statistics 2009 and own calculations

ticipating in the world-wide export (including the intra-Union trade) by 46%. Other important exporting regions are Asia (19%), North America (16%), South and Central America (11%). The most significant exporting countries are the USA (10.4%), the EU (9.5%), Brazil (4.6%), Canada (4%), China (3.2%), Argentina (2.8%), Indonesia (2.4%), Thailand (2.4%), Malaysia (2.1%), Australia (1.9%), Russia (1.9%), India (1.6%), New Zealand (1.3%), Mexico (1.3%) and Chile (1.2%).

In the last twenty years, considering the export side of the world agrarian trade, the position of the states of Latin America headed by Brazil, China, India and South-East Asia has improved. On the other hand, the USA and Canada have recorded a drop from their previous positions (WTO 2007).

Besides exports, the other important factor influencing the present shape of the world trade with agrarian and food production is the import development and

structure. According to the WTO data over the year 2008, the biggest world importers of agrarian products were the EU (12.2%), the USA (8.2%), China (6.1%), Japan (5.7%), Russia (2.4%), Canada (2.2%), South Korea (1.9%), Mexico (1.8%), Hong Kong (0.7%), Saudi Arabia (1.1%) and the United Arab Emirates (1%). China and Russia have become important customers of agrarian goods in the last twenty years.

From the commodity structure of the total foreign trade of the majority of regions of the world (Figures 2 and 3), it is obvious that the share represented by agrarian trade is relatively small. A relatively important role of the total export (about 24%) is played by agrarian export in the region of Central and South America, and in the total import in the Africa region and in the Commonwealth of Independent States (CIS) (its share amounts to 14%, and 12% respectively).

From the viewpoint of the commodity and territorial structure of the world agrarian foreign trade (AFT),

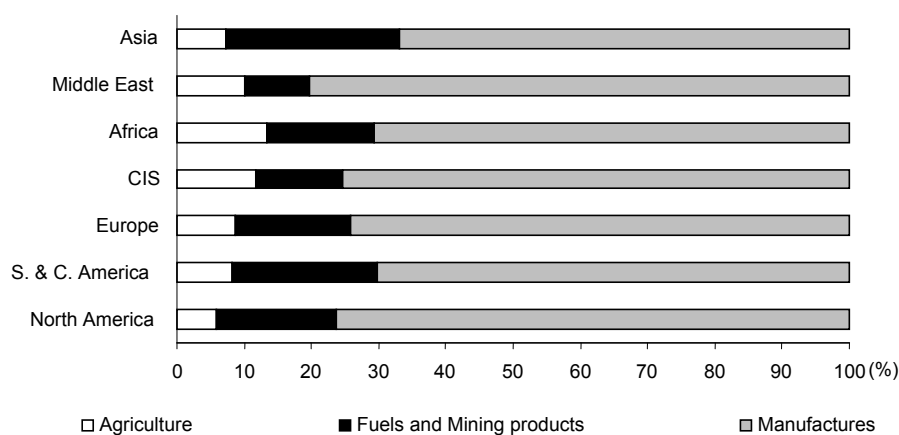


Figure 3. Commodity import structure in selected regions of the world (2004–2008)

Source: International Trade Statistics 2009 and own calculations

it can be stated that the high growth dynamics of global consumption influences the growth of volume of the actual trade flows. That was proved mainly in the cases of fats and oils, pig and especially poultry meat. On the other hand, the average world year-on-year consumption increment has decreased in wheat, rice and fodder cereals. The long-term tendencies of global consumption of agricultural products and foods show a dynamic growth of demand for more energetically demanding foods (Štiková 2009). However, these tendencies showed themselves mainly in the developing countries (DC). On the other hand, in advanced countries, only an insignificant growth of food consumption was registered and in the case of some commodities, a stagnation of consumption was recorded (rice, sheep and goat meat, wheat).

These differences in the composition of the production and consumption of agri-food goods in recent years are also apparent to a considerable extent in the significant dispersion of annual increments of the world agrarian trade value. A significant, above-average import movement (again mainly in DC) is especially noticeable in protein feeds, pig and poultry meat. Vice versa, the year-on-year increments of trade with some plant products were lower.

Very significant differences are also evident in the share of internationally traded production in the total world production (export commitment) of particular important agrarian commodities, or commodity aggregations. The highest traded share is by tropical and subtropical stimulants and beverages, i.e.: generally products originating from DC; their growth is conditional to a considerable extent on climatic conditions. This fact is the cause of the constantly higher price fluctuations in these commodities in comparison with products which are substantially less affected by climatic conditions.

Price is one of the important factors influencing the volume and structure of world trade. Price development of internationally traded agrarian goods showed mainly a decreasing tendency in the last forty years. Real prices of the main agrarian commodities on the international market decreased continually from 1980 to 2006 (FAO 2009). According to FAO calculations, the real price level of main agricultural products at the turn of century in comparison with 1975 was practically half; the nominal price stagnated and also decreased in some periods.

Since roughly the beginning of the 1980s, the international agrarian market was a market with a significant oversupply, i.e. a buyer's market. Analyses undertaken by international organisations agree that the main cause of the growing pressure of supply over demand and the following price decrease in the last

ten years were the distortions caused by high budget supports of national agrarian sectors in advanced countries (production and export of agrarian production) reaching 310 billion USD yearly in thirty countries. These supports were further accompanied by a high rate of market protection of these countries (Bazin 2006; WTO 2009).

A fast price growth happened as a consequence of the demand growth in the second half of the first decade of the 21<sup>st</sup> century. However, owing to the dramatic deterioration of the situation on the financial markets since the second half of 2008, there was an exceptional development of the global economy. The financial crisis broke out at the moment when nominal prices of commodities reached historically the highest values.

Food price increased its value by more than 100% in 2005–2008. Nevertheless, the start of the crisis halted the prices increase, and they subsequently started to decrease. However, it must be stressed that despite the significant decrease, the prices did not fall to the level of the period 2000–2005. At present, prices are higher than in 2005 by roughly 30%. At the same time, it is essential to point out that price oscillations are a common phenomenon for commodities like sugar, cereals, meat, milk and oils (the backbone of the world agrarian production and the world trade with agrarian commodities) (Figure 4).

Very important factors influencing the price level on the world market are also the input prices necessary for the security of agrarian production and trade. From this viewpoint, the most significant inputs influencing the resulting price are energies and fuels, raw materials, costs for storage, processing, transportation and fertilisers. At the turn of the century, the growth rate of prices of agrarian and food production exceeded the growth rate of input prices. However, the situation has fundamentally changed since 2003. At present, input prices grow almost twice as fast as output prices which greatly influence the production and trade economy of the agrarian and food production.

The global decrease of economic activity was evident in the rapid decline of international trade in all regions of the world. Over the period from the 3<sup>rd</sup> quarter of 2008 to the 1<sup>st</sup> quarter of 2009, the year-on-year decrease of the world trade value has exceeded 20%. According to estimates, the value of international agrarian trade turnover fell year-on-year by roughly 13% in 2009 (EUROSTAT database).

Particular countries reacted to this economic crisis by various protectionist measures (implementation of decreased tariffs owing to high world prices, reduction of export of agricultural and food goods, limitation of import tariffs for agricultural inputs, and even by



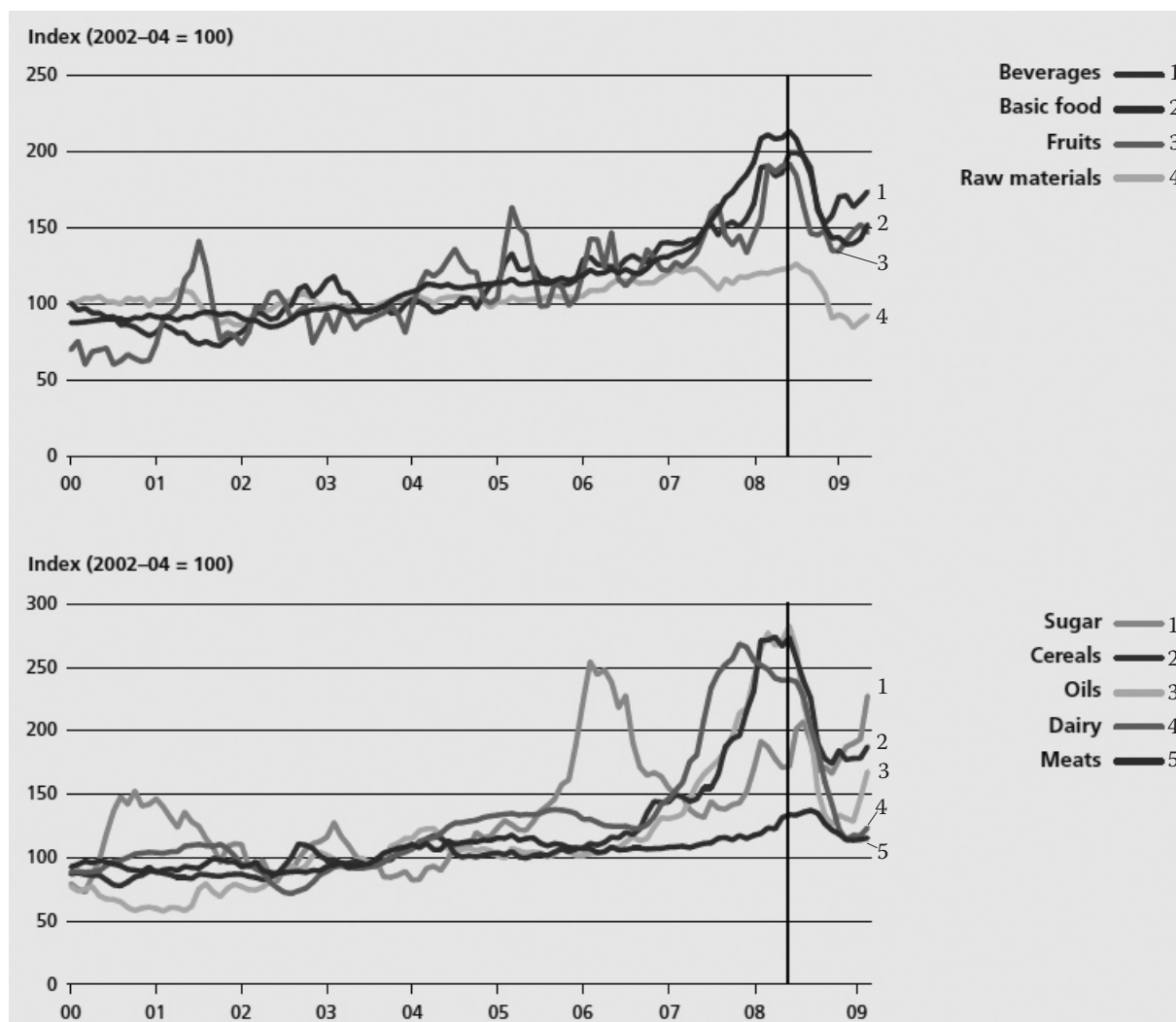


Figure 4. Price development of selected agrarian commodities in 2000–2009

Source: FAO

implementation of subsidies for purchase, provision of direct subsidies to specific agricultural sectors and so on). The agri-food sector is supported not only by the OECD countries, but also by other states, including the developing (mainly in the Middle East, in South-East Asia and Latin America). In 1986–1988, the prices of agricultural producers in the OECD countries were higher by 58% than the corresponding prices on the international market. In the next years this protection was reduced, though prices paid to farmers since 2008 still exceed the price level on the international market in average by 21% (much bigger differences are obvious in some commodities and countries). A characteristic feature of the opportunist development of the agrarian market in the last 40 years is the continual decrease of the absolute or even relative level of the world reserves of main plant products.

According to the OECD and the FAO data, the biggest world importers in 2007 were the EU-27, the

USA, Japan, China, Russia, Canada, Mexico, South Korea and Hong Kong.

Besides a quantitative evaluation of the agrarian sector position in particular regions of the world, the characteristics of the position and competitiveness of the agrarian sector is also determined (in the given case of agrarian trade) in the particular world regions in the context of the global market. The analysis is based on the modified Ballasa indexes (Qineti et al. 2009) of the revealed comparative advantage in the *individual subject's agrarian* export structure (RCA) and the revealed comparative advantage in the global market (RCA 1).

From the viewpoint of the development of the revealed comparative advantage (RCA 1 index – i.e. the comparative advantage in the world market), it can be stated that in the case of agrarian production, the competitive advantage is reached on the world market by North America, South America and the countries of CIS – except Russia. On the other hand, the ex-

RCA – indicator of comparative advantages	RCA1 – indicator of export advantages
$RCA = \ln \left[ \frac{(x : m)}{(X : M)} \right]$	$RCA1 = \frac{x_{ij}}{x_{wj}} \bigg/ \frac{\sum x_i}{\sum x_w}$
$x$ = commodity export	$x_{ij}$ = export of country “i” and commodity “j”
$m$ = commodity import	$x_{wj}$ = export of group of countries “w” and commodity “j”
$X$ = total agrarian export of given country	$\sum x_i$ = total export of country “i”
$M$ = total agrarian import of given country	$\sum x_w$ = total export of group of countries
If:	If:
$RCA > 0$ – comparative advantage	$RCA > 1$ comparative advantage
$RCA < 0$ – comparative disadvantage	$RCA < 1$ comparative disadvantage
$RCA = 0$ – it neither advantage nor disadvantage	

port advantage was not proved in Asia, the Middle East and the EU-27. In recent years, the decline of competitiveness of Africa on the world market has been recorded. There is no comparative advantage in the total CR agrarian export on the world market (the comparative advantage is obvious only in the case of export of specific products and commodity aggregations) – Tables 1–3.

During the period 2004–2008, the commodity structure of Czech agrarian export changed significantly. Particular export items are divided into two groups. The first group consists of commodities which reach a competitive advantage neither on the internal market of the EU countries nor on the world market. In the second group, there are fifteen competitive items (S3-098, S3-062, S3-061, S3-043, S3-041, S3-091, S3-001, S3-022, S3-045, S3-071, S3-122, S3-111, S3-073, S3-048 and S3-023) on both markets. The number of items which are competitive on one market and non-competitive on the other one is minimal at present.

Considering the situation on internal and foreign trade, as well as from world-wide challenges connected with the globalisation processes, from the viewpoint of the agrarian sector it can be emphasized that (VUZE 2007 and other sources):

- Water will become a limiting factor in the coming decades (Moldena et al. 2010);
- The land acreage per inhabitant should decrease to 0.2 ha (FAO – prognosis of world population growth by the year 2025);
- The expected dynamics of economic development in the most populated areas of the world (China, India etc.) can lead to a situation in the near future that the world-wide trade with agri-food products will grow as much as twice as fast than the total world trade (Braun 2007);
- With the growth of costs of energy from fossil fuels, and the decrease of costs of energy from bio-mass, it can be expected that the competition on the land market will grow (Bryan 2010);
- Increasing intensity of truck transport leads to unbearable pollution of the environment and can become one of the important arguments in favour of the necessary regionalisation of agrarian supply of heavy goods (Barde and Pearce 1990);
- Continuing use of biotechnologies in agriculture will lead to a permanent growth of profitability of crop-plants grown. E.g. 80% of world cotton production are in the category of genetically modified products (Tripp 2009);

Table 1. RCA – agricultural products in selected regions of world and the CR, 2004–2008

	2004	2005	2006	2007	2008
North America	0.45	0.43	0.44	0.48	0.54
South and Central America	1.09	1.09	1.03	1.04	1.03
CIS	−0.40	−0.53	−0.52	−0.33	−0.45
Africa	0.65	0.59	0.29	0.22	0.11
Middle East	−1.50	−1.47	−1.46	−1.46	−1.55
Asia	−0.31	−0.30	−0.29	−0.28	−0.24
EU 27	−0.14	−0.10	−0.04	−0.09	−0.04
Czech Republic	−0.39	−0.31	−0.39	−0.37	−0.26

Source: International Trade Statistics 2009 and own calculations

Table 2. RCA1 – agricultural products in selected regions of world and the CR, 2004–2008

	2004	2005	2006	2007	2008
North America	1.12	1.10	1.14	1.17	1.22
South and Central America	3.28	3.15	2.94	3.06	3.06
CIS	1.38	1.17	1.03	1.23	1.13
Africa	1.37	1.30	0.98	0.90	0.80
Middle East	0.27	0.27	0.29	0.28	0.28
Asia	0.68	0.66	0.68	0.68	0.70
EU 27	0.60	0.61	0.65	0.63	0.64
Czech Republic	0.47	0.59	0.56	0.56	0.55

Source: International Trade Statistics 2009 and own calculations

- If world agriculture reaches the situation when the agrarian commodity market stops being characterised by a long-term prevalence of supply over demand, then it is necessary to expect a loss of interest in the liberalisation of agrarian trade. With insufficient supply of agrarian production (the given market becomes the seller's market) it cannot be expected that the WTO activities in favour of the

Table 3. Values of RCA1 index showing the competitiveness of particular commodity aggregations of Czech agrarian exports in the period 2004–2008 on the world market and on the market of the EU-27 countries

SITC 3 – rev. nom. 2002	2004–2008		SITC 3 – rev. nom. 2002	2004–2008	
	RCA1 world	RCA1 EU		RCA1 world	RCA1 EU
S3-001 LIVE ANIMALS	3.56	2.2	S3-056 VEGETABLES, PRPD, PRSVD, NES	0.41	0.36
S3-011 BOVINE MEAT	0.09	0.1	S3-057 FRUIT, NUTS EXCL. OIL NUTS	0.42	0.47
S3-012 OTHER MEAT, MEAT OFFAL	0.61	0.54	S3-058 FRUIT, PRESERVED, PREPARED	0.73	0.81
S3-016 MEAT, ED. OFFL, DRY, SLT, SMK	0.36	0.19	S3-059 FRUIT, VEGETABLE JUICES	0.54	0.45
S3-017 MEAT, OFFL. PRPD, PRSVD, NES	1.01	0.8	S3-061 SUGARS, MOLASSES, HONEY	1.82	2.97
S3-022 MILK AND CREAM	3.33	2.15	S3-062 SUGAR CONFECTIONERY	4.36	3.98
S3-023 BUTTER, OTHER FAT OF MILK	2.09	1.25	S3-071 COFFEE, COFFEE SUBSTITUTE	1.24	1.97
S3-024 CHEESE AND CURD	0.85	0.38	S3-072 COCOA	0.15	0.21
S3-025 EGGS, BIRDS, YOLKS, ALBUMIN	1.44	0.93	S3-073 CHOCOLATE, OTH.COCOA PREP	2.05	1.42
S3-034 FISH, FRESH, CHILLED, FROZN	0.33	0.56	S3-074 TEA AND MATE	0.31	0.7
S3-035 FISH, DRIED, SALTED, SMOKED	0.09	0.1	S3-075 SPICES	0.24	0.52
S3-036 CRUSTACEANS, MOLLUSCS ETC	0.01	0.01	S3-081 ANIMAL FEED STUFF	0.88	1.05
S3-037 FISH ETC. PREPD, PRSVD. NES	0.15	0.27	S3-091 MARGARINE AND SHORTENING	2.65	2.34
S3-041 WHEAT, MESLIN, UNMILLED	1.29	2.36	S3-098 EDIBLE PROD. PREPRTNS, NES	2.46	4.43
S3-042 RICE	0.14	0.52	S3-111 NON-ALCOHOL. BEVERAGE, NES	2.12	1.53
S3-043 BARLEY, UNMILLED	2.4	2.38	S3-112 ALCOHOLIC BEVERAGES	1.02	0.88
S3-044 MAIZE UNMILLED	0.4	0.9	S3-121 TOBACCO, UNMANUFACTURED	0.24	0.78
S3-045 OTHER CEREALS, UNMILLED	1.47	2.12	S3-122 TOBACCO, MANUFACTURED	2.46	1.91
S3-046 MEAL, FLOUR OF WHEAT, MSLN	0.41	0.74	S3-411 ANIMAL OILS AND FATS	0.17	0.21
S3-047 OTHER CEREAL MEAL, FLOURS	0.12	0.25	S3-421 FIXED VEG. FAT, OILS, SOFT	0.59	0.7
S3-048 CEREAL PREPARATIONS	1.9	1.3	S3-422 FIXED VEG. FAT, OILS, OTHER	0.02	0.08
S3-054 VEGETABLES	0.61	0.41	S3-431 ANIMAL, VEG. FATS, OILS, NES	0.76	0.94

Source: UN Comtrade and own calculations



liberalisation of international agrarian trade will be further stressed (Svatoš 2009);

- It is not possible to completely exclude the possibility that world exporters will misuse export funds to promote power-political interests (OECD-FAO 2007);
- Prognoses of development on the stock markets confirm the trend that food stocks are traded very advantageously (WTO 2011).

### Main development tendencies of the CR agrarian foreign trade

The Czech agrarian sector, considering the given natural conditions and the limited economic dimensions of the country, is not able to fully meet the domestic needs of its agrarian market and therefore has to constantly import many agricultural and food commodities, whereas a stagnating, or even a growing negative balance of the AFT balance sheet was, and is to some extent, influenced by the non-substitutable imports of non-competitive food raw materials, foodstuff products and many other raw materials demanded by non-agricultural departments. For the group of non-competitive imports, this situation can

not be connected with the higher or lower efficiency of Czech agrarian sector.

Czech agriculture remains permanently in its position of net agrarian importer, with the exception of 1991 and 1993, when the value of the AFT balance reached 2.4 billion CZK, and 0.8 billion CZK, respectively. These two completely untypical years, during the transformation period of Czech agriculture, are connected with the mass reduction of animal numbers and the subsequent export of surpluses occurred. The positive agrarian balance in 1993 was because the traditional balance surpluses to Slovakia were now included as export (VUZE 2007).

The share of agrarian export in the total CR exports varies in the range 3.6–4.9% in the long term (in 2009 owing to the world crisis and the decrease of the total exports this share reached 5.4%). The participation of agrarian import in the total import of the CR is higher (in the long-term around 5% and in 2009 it reached about 6.8%).

The significance of agrarian trade in the total trade constantly decreases, despite the gradual long-term increase of its value. In 1993–2009, the turnover value of the CR agrarian foreign trade in current prices increased 3.7 times, of which the import value was more than 4 times and the export more than

Table 4. Basic characteristics of the CR agrarian foreign trade in 1993–2009

Year	Export		Import		Balance sheet (mil. CZK)	Coverage degree of imports by exports (%)	Share of agrarian export in total export (%)	Share of agrarian import in total import (%)
	mil. CZK	index	mil. CZK	index				
1993	32 857	100	31 657	100	1 200	103.8	8.4	8.4
1994	29 750	91	40 179	127	–10 429	74.0	7.0	9.3
1995	35 523	108	47 621	150	–12 098	74.5	6.2	7.1
1996	33 774	103	55 785	176	–22 012	60.5	5.6	7.4
1997	38 792	118	59 677	189	–20 886	65.0	5.5	7.0
1998	41 232	125	61 045	193	–19 813	67.5	4.9	6.6
1999	39 762	121	60 583	191	–20 820	65.6	4.0	6.2
2000	47 725	145	64 883	205	–17 159	73.6	4.3	5.2
2001	49 418	150	69 081	218	–19 663	71.5	3.9	5.0
2002	45 124	137	68 850	217	–23 726	65.5	3.6	5.2
2003	48 794	148	74 029	234	–25 235	65.9	3.6	5.1
2004	61 526	187	93 544	295	–32 018	65.8	3.6	5.3
2005	78 520	239	103 744	328	–25 224	75.7	4.2	5.7
2006	78 533	239	112 474	355	–33 941	69.8	3.7	5.3
2007	97 151	296	125 138	395	–27 987	77.6	3.6	5.1
2008	106 957	326	130 163	411	–23 206	82.2	4.3	5.0
2009	105 374	321	133 363	421	–27 989	79.0	5.4	6.8

Source: Statistics of foreign trade, CSO

3 times. In 2009, the value of Czech agrarian exports reached 105.4 billion CZK and the agrarian import value 133.4 CZK.

In 1993–2009, the export value increased yearly by an average of 7.5%, while the import value increased by 9.4%, causing the negative balance of agrarian foreign trade to gradually increase (in 2009 it reached 28.0 billion CZK) In 2001–2009, the net import value varied within the range 19.7–33.9 billion CZK, whereas the average yearly growth rate of negative balance of AFT ranged around 7% (Table 4).

In the period after the accession of the CR into the EU, the development trend of agrarian foreign trade changed very significantly (the export growth rate was higher, in comparison with import). One positive aspect of this development is that the export value grows despite the regular considerable drop or liquidation of export subsidies (mainly with dairy products).

#### **Territorial structure of the CR agrarian foreign trade**

The orientation of Czech AFT to the EU is too high. The EU countries already participate in Czech agrarian export and import by more than 90%. On the other hand, the importance of trade with third countries (especially DC, Other developed countries (ODC), or CIS) has significantly decreased (Table 5).

If we analyze the territorial structure development of Czech agrarian export, we can see that the share of the old EU members (EU-15 countries) increased by 9.5% over the last 8 years, and the share of the new EU members (EU-12 countries) increased by 2.8%. The

most important consumers of agricultural and food products are Slovakia, Germany, Poland, Austria and Hungary. Considering the trade with third countries, the CR exports agrarian products mainly to Russia (although its share has significantly decreased in the recent years), and also to Croatia, Japan, Ukraine, Switzerland, the USA and Norway.

Joining the EU proved that there are greater opportunities for Czech agrarian export on the less demanding markets of the new member states (EU-12), where the dynamics of export growth exceeds the import growth rate.

Additionally, the share of the present EU countries in the total value of Czech agrarian import increased by 11.5% during the last eight years, whereas in 2005–2007 the share of the EU-15 and EU-12 in the total agrarian import in the CR increased year-on-yearly on average by 17.3% and 19.16%, respectively. On the other hand, the participation of other territories in Czech agrarian import has been constantly decreasing (except for the EFTA territory). The main suppliers of agrarian goods to the CR are, in the long-term, Germany, Poland, Slovakia, the Netherlands, Italy, Spain and Austria.

Considering the trade with third countries, the agrarian import to the CR is mostly from China, the USA, Brazil, Turkey, Vietnam, Canada, Thailand and Switzerland. However, it should be pointed out that development of AFT with these countries is considerably variable, not only from the viewpoint of the value, but also the commodity structure.

An interesting fact from the viewpoint of the territorial structure of Czech AFT is the development of the structure of the negative balance. Although the participation of third countries in the CR AFT

Table 5. Share of the EU countries and other states in Czech agrarian trade in %

CR AFT	EU			Other countries		
	export	import	turnover	export	import	turnover
2000	78.9	72.7	75.3	21.1	27.3	24.7
2001	80.8	73.9	76.7	19.2	26.1	23.3
2002	83.5	76.4	79.2	16.5	23.6	20.8
2003	83.2	76.6	79.2	16.8	23.4	20.8
2004	86.8	79.1	82.1	13.2	20.9	17.9
2005	86.6	82.0	84.0	13.4	18.0	16.0
2006	88.9	84.5	86.3	11.1	15.5	13.7
2007	91.2	84.3	87.2	8.8	15.7	12.8
2008	92.1	92.4	92.3	7.9	7.4	7.7
2009	92.6	93.4	93.1	7.6	6.6	6.9

Source: ÚZEI and own calculations

turnover amounts only to 15%, their share in the total value of trade balance amounts to 35% (in 2004–2008 the average value of negative balance of AFT with third countries was at a level of about 10.5 billion CZK yearly). The EU-27 share in the negative balance of Czech AFT amounts to 65%.

### Commodity structure of the CR agrarian foreign trade

The problem of the controversial export-import structure is a long-term problem of Czech agrarian trade, which is proved mainly because basically 6 commodity aggregations share in the total Czech export and import of agricultural and food products evenly roughly by 50% (Table 6).

Owing to an enormous increase of pig meat imports, from 2007 the main net-import commodity aggregation has become KN 02 Meat and tripe (KN – combined nomenclature of the EU goods arising from the “Harmonized system of description and numeric mark of goods”). The share of this grouping in the total Czech agrarian import already amounted to

12% in 2009, and its balance deficit reached 12.1 billion CZK.

The dominant position in Czech agrarian export is that of “Cereals and oil plants” (they share in the total CR agrarian export by 15%). However, their growing and export are subject to considerable year-on-year weather fluctuations and subsequently of the actual prices, owing to the changes in supply and demand.

Other important Czech export commodities are “Milk and milk products” in the long term. However, since the CR accession into the EU, the group “KN04 Milk and milk products, bird eggs and honey” lost its privileged position – the value representation of evaporated milk gradually decreased in the export commodity structure, and since 2008, also butter (in 2009 butter was a net-import commodity for the first time). Cottage cheese and cheeses occupy a steady position in Czech export; however, their imports are substantially higher. Therefore, the balance of trade with these products is significantly passive since the CR accession into the EU.

On the other hand, exports of non-evaporated milk (mostly directed to Germany) increased enormously

Table 6. Most important commodity aggregations\* of Czech agrarian export and import

KN	1999	2003	2004	2005	2006	2007	2008	2009	1999	2005	2009
	export (bill. CZK)								share in total export (%)		
04	5 591	6 254	8 239	10 471	12 476	15 598	14 672	12 826	14.1	13.3	12.2
10	2 517	3 399	1 671	6 801	5 657	7 412	7 562	9 478	6.3	8.7	9.0
12	5 111	2 644	3 619	4 583	3 361	7 281	8 413	7 376	12.9	5.8	7.0
17	1 246	3 294	7 125	8 088	6 727	5 049	5 683	5 228	3.1	10.3	5.0
21	2 261	5 425	5 911	6 259	6 064	7 980	8 947	9 402	5.7	8.0	8.9
22	4 135	5 571	6 518	7 317	8 311	10 358	10 247	10 359	10.3	9.3	9.8
Others	18 901	22 218	28 444	35 001	35 944	44 167	55 524	50 705	47.6	44.6	48.1
In total	39 762	48 805	61 526	78 520	78 542	97 844	106 957	105 374	100.0	100.0	100.0
	import (bill. CZK)								share in total import (%)		
02	1 763	3 416	7 192	10 027	10 864	12 263	13 788	16 015	2.9	9.7	12.0
04	2 076	3 977	5 451	7 221	8 456	10 403	10 044	10 313	3.4	7.0	7.7
07	4 152	5 345	6 337	6 968	8 890	9 696	8 854	9 338	6.9	6.7	7.0
08	7 163	8 168	10 698	11 741	10 782	11 140	11 531	11 006	11.8	10.3	8.3
21	6 234	7 526	7 932	8 771	8 734	10 387	10 517	9 788	10.3	8.5	7.3
22	2 816	4 715	6 524	7 094	7 930	9 315	9 700	9 950	4.6	6.9	7.5
Others	36 377	41 112	49 688	51 701	57 082	65 571	64 434	66 410	60.1	50.9	50.2
In total	60 582	74 259	93 822	103 522	112 737	128 775	130 163	133 363	100.0	100.0	100.0

\*KN 02 Meat and tripe, KN 04 Milk and milk products, bird eggs and honey, KN 07 Fruit, edible plants, roots, bulbs, KN 08 Fruits and nuts, KN 10 Cereals, KN 12 Oil seeds and fruits, KN 17 Sugar and confectioneries, KN 21 Various food preparations and KN 22 Beverages, spirit liquids and vinegar

Source: CSO, VUZE, ÚZEI, own elaboration

by 2008. A significantly growing tendency in the export of fermented milk products has rapidly become an active trade balance in the recent years.

To sum up, the most important commodity aggregations of Czech agrarian export are KN 04 (Milk and milk products, eggs and honey), KN 10 (Cereals), KN 11 (Mill products, malt and starch), KN 12 (Oil seeds and fruits), KN 17 (Sugar and confectioneries), KN 22 (Beverages, spirit liquids and vinegar), and of Czech agrarian import HS 02 (Meat and tripe), HS 07 (Vegetables), HS 08 (Fruits and nuts), HS 19 (Preparations from cereals), HS 20 (Preparations from fruits and vegetable), HS 21 (Various food preparations) and HS 23 (Feed and food industry remains) – (Table 6).

A closer examination reveals that a decisive part of agrarian export is formed by the commodities with a low added value (non-evaporated milk, living ani-

mals, wheat, oil rape, poppy etc.). On the other hand, products with a higher added value are imported to a large extent (cottage cheese and cheeses, meat in a higher finalisation degree, meat products, preparations used for animal nutrition).

However, a positive export phenomenon is the re-strengthening of export of the traditional Czech export commodities, i.e. malt, hops and beer. Also the balance deficit in trade with fruits and vegetable continues to increase – though in both cases, it is not only with export of commodities of the non-competitive character. A differentiation of the categories of non-competitive imports in Czech AFT was carried out, because the negative tendencies in Czech AFT deepened in many commodity aggregations (tropical and sub-tropical fruits and vegetable, cocoa beans, peanuts etc.) in period 2004–2009.

Table 7. Total import of non-competitive agrarian commodities (in mil. CZK)

KN	Name of commodity aggregation	2006	Ø 2004–06	Share*	2009	Ø 2007–09	Share**
01	Living animals						
02	Meat and edible tripe						
03	Fish, crustaceans, molluscs	1 451.4	1 365.6	5.8	1 750.6	1 647.3	5.9
04	Milk and milk products, eggs	290.2	4.9		350.7	35.4	
05	Other products of animal origin						
06	Living plants and floricultural products						
07	Vegetable						
08	Edible fruits and nuts	4 826.2	5 371.0	22.7	4 941.8	5 500.2	19.8
09	Coffee, tea, yerba and spices	1 553.4	1 484.5	6.3	1 977.1	1 890.1	6.8
10	Cereals	634.2	513.1	2.2	515.8	417.3	1.5
11	Mill products, malt, starch etc.	83.7	75.7	0.3	139.7	126.3	0.5
12	Oil seeds and fruits	517.7	614.2	2.6	453.8	538.2	1.9
13	Plant extracts and juices	185.3	193.5	0.8	279.1	291.4	1.0
14	Plant knitting materials						
15	Animal or plant fats and oils	1 834.7	1 672.9	7.1	2 666.9	2 512.2	9.0
16	Preparations from meat, fish, crustaceans etc.	1 083.4	1 036.0	4.4	1 532.2	1 464.8	5.3
17	Sugar and confectioneries	14.6	13.2		15.2	13.8	
18	Cocoa and cocoa preparations	2 538.6	2 340.3	9.9	2 773.6	2 557.2	9.2
19	Preparations from cereals						
20	Preparations from vegetable and fruits	1 239.8	1 113.7	4.7	1 393.0	1 250.9	4.5
21	Various food preparations	889.4	608.4	2.6	998.4	682.9	2.5
22	Beverages, spirit liquids and vinegar	3 761.6	3 531.5	14.9	4 736.3	4 447.4	16.0
23	Remains and waste, feeds	3 440.9	3 700.6	15.7	4 115.6	4 424.2	15.2
24	Tobacco and tobacco products						
In total		24 345.1	23 639.1	100.0	28 639.8	27 799.6	99.1

\*in total import of non-competitive products in 2004–2006 (%), \*\*in total import of non-competitive products in 2007–2009 (%)

Source: Statistics of Foreign Trade, CSO and own calculations

A decisive share in the total average annual value of net import of non-competitive products in 2007–2009, reaching a level of 27.8 billion CZK, was that of the commodity aggregation Fruits (19.8%). Wine and distillates amounted to 16.0%, soya cake 15.2%, cocoa and cocoa preparations 9.2%, fats and oils 9.0%, coffee, tea and spices 6.8%, fish, Crustaceans and molluscs 5.9%, and Preparations from meat, fish, crustaceans etc. 5.3%. The share of these eight decisive import aggregations in the total imports of non-competitive agrarian products over the monitored period was 87.2% (Table 7).

From the viewpoint of imports of non-competitive agrarian commodities, in relation to the total value of the agrarian CR import, and even regarding all mentioned objections, it can be said that imports of non-competitive products with their share 21.5–22.0% remain a steady part of Czech agrarian import.

## CONCLUSION

On the basis of this evaluation of development and the position of the CR AFT in recent years (especially in the period 1999 – 2009), it can be said that its future form will be influenced mainly by changes of internal (i.e. the own structure of the Czech agrarian sector) and external environment (i.e. the world market, the market of the EU countries, the common agricultural and trade policy of the EU, negotiations in the WTO and so on), by the extent and composition of supply and demand on the domestic and foreign agrarian markets (mainly on the market of the EU-27 countries), by the modification of the volume and structure of production of agricultural and food products, by a gradual price growth of agrarian commodities, and, last but not least, by changes in consumer behaviour.

The decrease of animal production and the stagnation of plant production together with the growth of domestic demand for agrarian commodities stimulated not only by the increased direct food consumption, but also the consumption for non-food purposes, will influence the territorial and commodity structure of Czech AFT very significantly.

The EU will strengthen its position as a dominant business partner of the CR, where its share in the total turnover of Czech AFT will exceed 90%.

From the viewpoint of the commodity structure of the CR AFT, a gradual change from the export of products of the basic agricultural industry to processed products with a high rate of added value can be expected.

In the AFT development, the turnover increase can be expected, both in the nominal and in the real

value together with a decrease of its share in the total foreign trade and the CR GDP. According to the available information (CSO, ÚZEI) and analyses, the gradually deepening balance deficit of the CR AFT will become stabilised during the following decade at the level of 30 billion CZK (from the viewpoint of the current real value of Czech currency).

Imports of non-competitive commodities were, and will remain, a steady part of the balance deficit of the Czech agrarian sector, and regarding the position of Czech agriculture in the national economy, and its competitive position towards other participants of agrarian market, it can be expected in the future that Czech agriculture would manage to fully even up the negative balance by increased imports of competitive goods.

The liberalisation process of agrarian trade, and the reform of the EU CAP, will lead to the intensification of competition, and pressures on the CR internal market, i.e. it will have a “self-cleaning” effect, which will finally result in an increase in the efficiency of agricultural and food products.

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