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111 EAAE-IAAE Seminar ‘Small Farms: decline or persistence’

University of Kent, Canterbury, UK

26th-27th June 2009

Position and Perspectives of Small Farms with Respect to the Structure Development of Subsequent Vertical Link

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Abstract

The objective of the paper is to find out the position and perspectives of small farms' production sales with respect to the structure development of subsequent vertical stage. Structure development is evaluated in terms of company's size, which is defined according to the number of the persons employed. The analysis is based on the assumption that small farms are able to sell their production rather to small than big processors and the question is whether the small processors give stability and certainty for small farms.

The paper deals with chosen commodity chains in the Czech Republic. As an example of the variability in the food industry there were chosen two processing sectors that are important processors of diverse commodity sources of production and with different structural characteristics which was mainly affected by divergent development during consolidation process in the Czech Republic. The main methodical approach is based on the share of value added which is as the indicator of performance showing the rate of production factor usage (input) on the final production (output) and on the turnover produced. Furthermore other indicators of financial situation are evaluated by the Spider Analysis of particular size groups of processors.

Keywords: meat and beverages sectors, size structure, small food processors.

INTRODUCTION

In the last decade, the character of agro-food chains functioning has changed significantly. Industrialisation and consolidation became characteristic features in the agricultural and food sector. Technological progress in production, development of information systems, new ways of trade and distributional systems have caused changes in the various stages of agro-food chains, from input supplies through agricultural products, their processing and distribution to retail outlets. Globalisation in the frame of food processing and distribution changes conditions in agro-food sector and influences also agrarian markets.

Farmers are more influenced by competition and expanding world food market. The farmers' position in agribusiness chain has worsened, which is mainly caused by increasing market position of the subsequent stages of the chain. Due to increasing competition on the saturated agro-food markets, there is a continuous increase of concentration in the manufacturing industry and retail trade sector. There are also other factors affecting particular stages of agro-food chains, e.g. liberalisation of trade, changing consumer demand and increasing interest in food quality, animal welfare and environmental issues. Agribusiness firms, in general, are confronted with rapidly changing markets and an almost world-wide competition. As a consequence, markets have become more dynamic and complex. The development of agribusiness is causing higher dependence of agricultural producers on its surroundings mainly on the following chain links in food chains in general (*Lubbers, Koorevaar, 1999; Saxowsky, Duncan, 1998; Boehlje, Akridge, Kalaitzandonakes, 2002*).

The trend is towards greater interdependence, when the main aspect of competitiveness is not the only ability to be responsive to changing customer needs and business environmental challenges, but also cost decreasing, product efficiency and delivery reliability. Thus, the costs of producing the diverse products demanded by consumers are likely lower in a more closely co-ordinated system. It implies that market position and financial performance depend increasingly upon successful negotiation and linkages between suppliers and distributors and also upon the proper external partners. These developments bring about the need for durable partnerships (*Blažková, 2002*).

In practice, the acceptance of these changes and the shift of focus to the finalizing segments of the processing and distribution of foodstuffs ever more significantly form a new and harder competitive environment of both agricultural companies and food processing companies (*Bečvářová, 2008*).

OBJECTIVES AND METHODOLOGY

The objective of the paper is to find out the position and perspectives of small farms' production sales with respect to the structure development of subsequent vertical stage. Structure development is evaluated in terms of company's size, which is defined according to the number of the persons employed. Companies are classified in four size groups – with 1-19, 20-49, 50-249 and 250 or more persons employed. The analysis is based on the assumption that small farms are able to sell their production rather to small than big processors and the question is whether the small processors give stability and certainty for small farms.

The paper deals with chosen commodity chains in the Czech Republic. As an example of the variability in the food industry there were chosen two processing sectors that are

important processors of diverse commodity sources of production and with different structural characteristics which was mainly affected by divergent development during consolidation process in the Czech Republic – the commodity chain of meat production and of beverages production. The main methodical approach is based on the share of value added which is as the indicator of performance showing the rate of production factor usage (input) on the final production (output) and on the turnover produced. Furthermore other indicators of economic situation are evaluated.

The research is based on the agricultural statistical reports of the Czech Statistical Office, Eurostat and research results published by the Ministry of Agriculture of the Czech Republic and the Ministry of Industry and Trade of the Czech Republic. The common statistical methods, e.g. analysis, synthesis, comparison, were employed in the data processing. The Spider Analysis Method was used for evaluation and presentation of economic performance of enterprises' size categories in 2006. The Spider diagram is made from 5 half-axis with percentage scale, there are chosen indicators on them (see Table 1). Higher values of the indicators mean better results and longer distance from the centre of the diagram.

Table 1 – Indicators used in Spider diagram

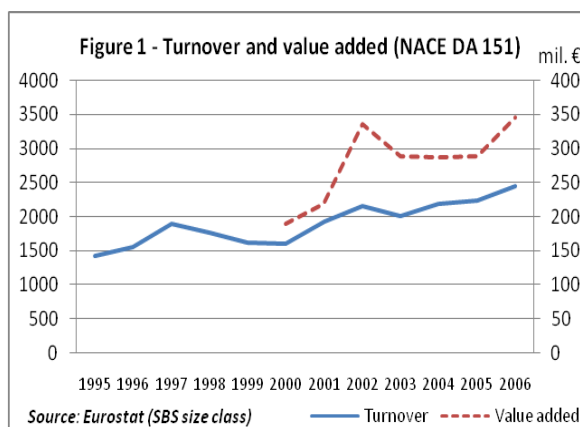
Variables are defined according to Commission Regulation No 2700/98, used by Eurostat.	
Value added at factor cost in production value [%]	The gross income from operating activities after adjusting for operating subsidies and indirect taxes (included value added) divided by production value.
Turnover per person employed	The totals invoiced by the observation unit during the reference period (this corresponds to market sales of goods or services supplied to third parties) divided by persons employed.
Apparent labour productivity [%]	This is an indicator of productivity calculated as value added divided by persons employed.
Wage adjusted labour productivity [%]	Value added divided by personnel costs, after the latter has been divided by the share of employees (paid workers) in the number of total persons employed. It can also be calculated by dividing apparent labour productivity by average personnel costs.
The gross operating rate [%]	This is an indicator of profitability where the gross operating surplus is related to the turnover generated. The gross operating surplus is the surplus generated by operating activities after the labour factor input has been recompensed. It can be calculated from the value added at factor cost less the personnel costs.

RESULTS AND DISCUSSION

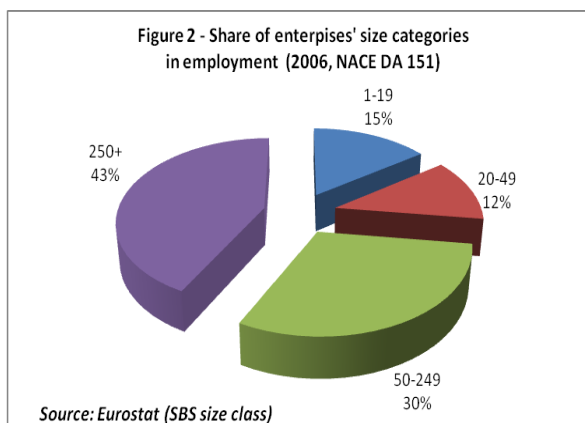
Structure development characteristics of food processors within selected commodity chains

For analysis there were chosen two sectors of food processing in the Czech Republic, that are rather different in economic performance development – processing of meat and manufacturing of beverages. The sector of meat processing belongs to the less efficient sectors from the viewpoint of value added per person employed not only in the Czech Republic, but also in EU. This sector is characterised by high share of consumer expenditures on food. The growth rate of production and the process of transformation in the Czech Republic have not finished yet. To the contrary, the sector of manufacturing of beverages belongs to the sectors with the highest performance and growth rate during last 10 years. In this sector there is a typical high share of second stage of processing, high value added, heterogeneous products differentiated by brands, that are encouraged by aggressive marketing and distribution network. There is concentrated competition with substantial market share of supranational companies.

The sector of **production, processing and preserving of meat and meat products** (NACE DA 151) includes all stages of meat processing that are consequential after animal husbandry: from slaughter to meat preparation for final consumption, including fresh, cooled, deep-frozen, dried, and salty and smoked meat. It includes also rawhide, lard and haslets processing. There are usually tight integrating linkages among breeders, feedstuffs producers, slaughter operators and food distributors. Specialization on particular kinds of meat depends on consumer demand and soil-climatic conditions. Domestic meat consumption was around 80 kg per person in 2007. The share of pig meat was roughly 53 %, the share of poultry meat 32 % and the share of beef 14 %.



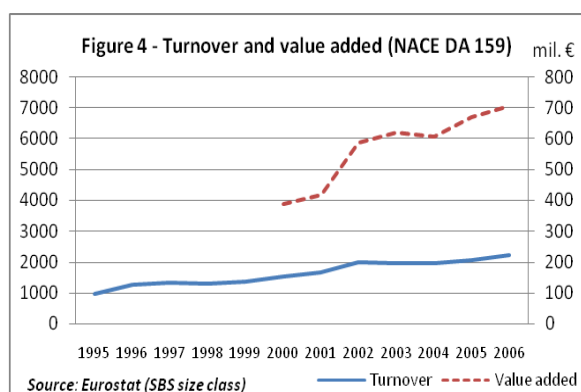
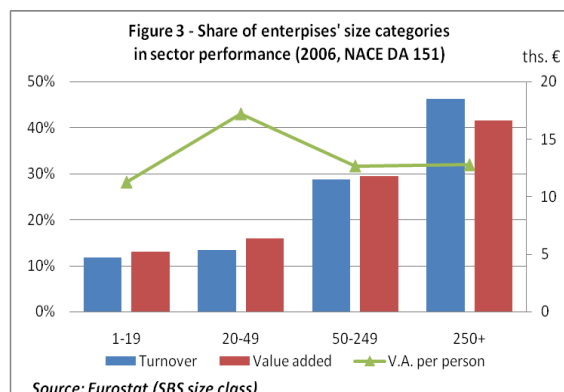
Production of meat generated in 2007 about 21 % of turnover in the all food and beverages sector and around 16 % of value added which is the third largest amount. As can be seen on figure 1 turnover was not rising at such increasing pace as value added that raised during



2000-07 for 56 %. Compared to the other New EU countries there is not such a number of foreign multinational companies and the market is ruled by organisations with the Czech origin (as are Kostelecke uzeniny, Masokombinat Policka, Masna Studena, etc.). These companies firstly integrated with agricultural service companies (as seeds and fertilisers producers) and nowadays they are integrating with large agricultural producers. That implicates higher competition for small farmers (*Sadilek, 2008*).

Higher competition and consolidation process in the meat sector leads to reduction in number of employees, which lowered from the year 2000 until 2007 for 17 %. There were 1030 enterprises active within the Czech Republic in 2006 in this sector. The overwhelming majority of these (97.9 %) were small and medium enterprises (SMEs)¹. On figure 2 it can be seen the share of particular size categories of enterprises in the sector employment. Small enterprises (with 1-19 and 20-49 persons employed) together employed nearly a third (27 %) of sector employees.

SMEs generate broadly similar amounts of value added in 2006 (with 13 % and 17 % shares of total sector value added) as it can be seen on Figure 3. Medium-sized enterprises (with 50-249 persons employed) employed 30 % of sector employees and their share in value added generated by the sector is 30 % in 2006. Large enterprises (with 250 or more persons employed), that employed 43 % of sector employees, generated in 2006 the highest amount of value added (42 % of the total) of the four size classes. Nevertheless, the highest value added per person employed is generated by smaller enterprises, which predicated about higher labour productivity of smaller enterprises (this fact is validated on Figure 7). From Figure 3 it also results, that smaller enterprises are able to gain any higher share on value added in comparison with share in turnover, than large enterprises.



The **manufacture of beverages** sector (NACE DA 159) includes alcoholic and non-alcoholic beverages, including mineral water, soft drinks, beer, wine and spirits. However it does not subsume production of fruit and vegetable juices, tea and coffee. In terms of turnover and value added this sector is the second biggest food sector in the Czech Republic. The share on turnover in 2007 was 21,7 % and on value added 29,3 %. The majority of the turnover is created in beer production (47,2 %). Beer

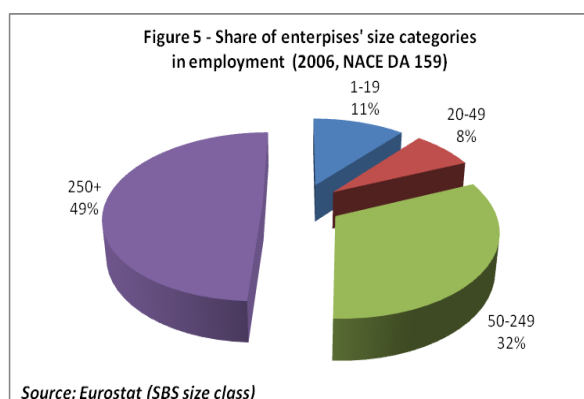
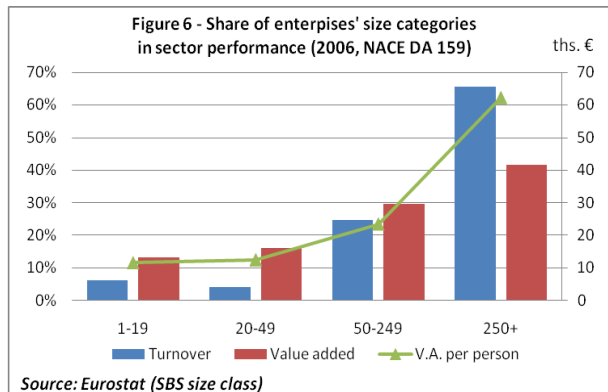
production is dominated by multinational companies which are strongly positioned in domestic markets mainly with old, well-established Czech brands. Plzensky prazdroj (owned by SAB Miller) controls almost the half of the market, followed by Pivovary Staropramen (AB-InBev 17 %) and companies owned by Heineken 14 % (Starobrna and Krusovice).

In the Czech Republic there were altogether 53 breweries in 2007. In the whole beverages sector there were 964 enterprises in 2006, 98.7 % of them is represented by SMEs. However, almost half of total employees of this sector are employed in large enterprises (49 % of the total). Small enterprises (with 1-19 and 20-49 persons employed) together employed only

¹ SMEs are defined by the European Commission as having less than 250 persons employed. They should also have an annual turnover of up to EUR 50 million, or a balance sheet total of no more than EUR 43 million (Commission Recommendation of 6 May 2003, OJ L 124 of 20.5.2003, p.36).

19 % of sector employees in 2006 and their share on turnover of total sector turnover was only about 13 %.

Compared to the whole food sector turnover of beverages sector was raising during 2000-2007 faster (30 % vs. 20 %). Better results of this sector were achieved in value added when the number rose for almost 47 % (vs. 33 %). While looking on Figure 4, we can see high share of large enterprises in sector turnover (over 66 %) and the highest value added per person employed in this size category.



Economies of scale can be given as reason for these results. Large enterprises in this sector are the most prosperous, they generate high value added and due to their powerful negotiating position they are able to realize higher prices of their production, respectively to gain low-cost production inputs than their smaller competitors. These results are confirmed by Spider analysis on Figure 8.

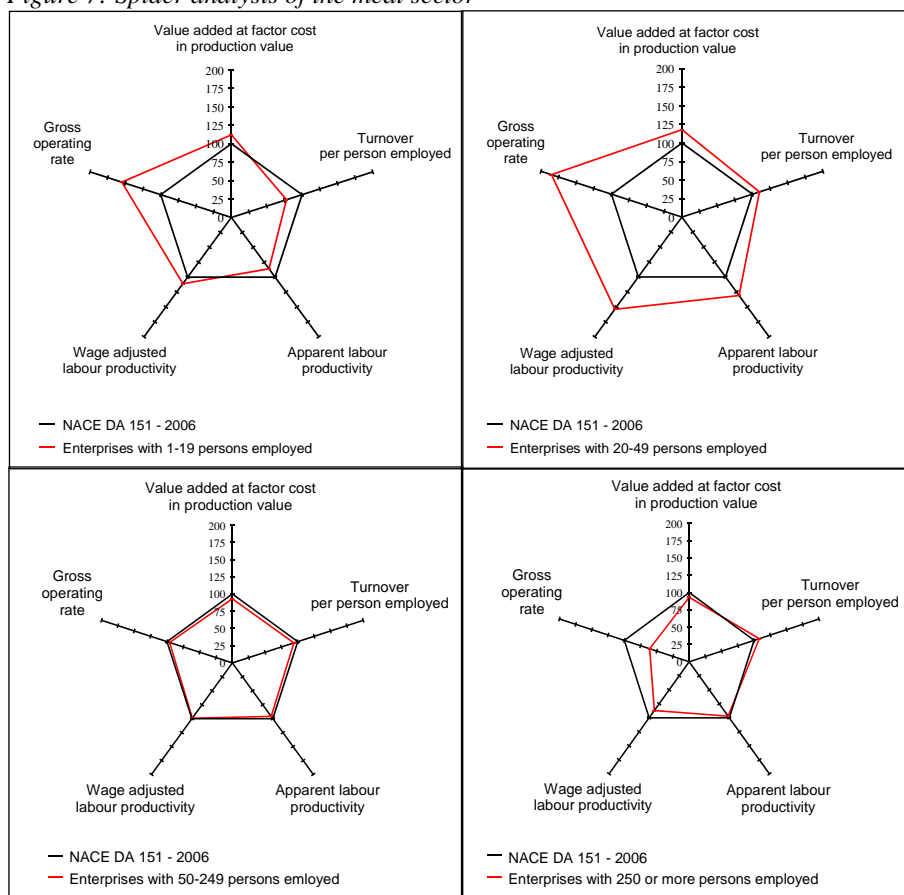
Perspectives of small farms' production use

If we assume, that small farms are able to sell their production rather to small than big processors, then these smaller processors should be prosperous to give stability and certainty for small farms.

The comparison of the position of particular size categories of enterprises in the meat processing sector with this sector as a whole is presented with using Spider diagrams.

Primarily we can see markedly higher profitability (represented by gross operating rate) of small meat processors (with 1-19 and 20-49 persons employed) in comparison with the total sector. Due to the difficult situation in this sector margins are declining already for around five years. That was caused mainly because of lowering prices of pig meat. Smaller enterprises in this sector can generate higher value added especially thanks to new specialized production schedules, faster reaction on changes of consumer preferences and targeting the local demand. These abilities enable them to gain higher market valuation of their production. This advantage declines as the enterprise size rises. Large meat producers in the Czech Republic are mainly oriented on cheap, mass production that is sold in large retail stores. Meat producers with 20-49 persons employed show the best economic performance as seen in all evaluated indicators.

Figure 7: Spider analysis of the meat sector

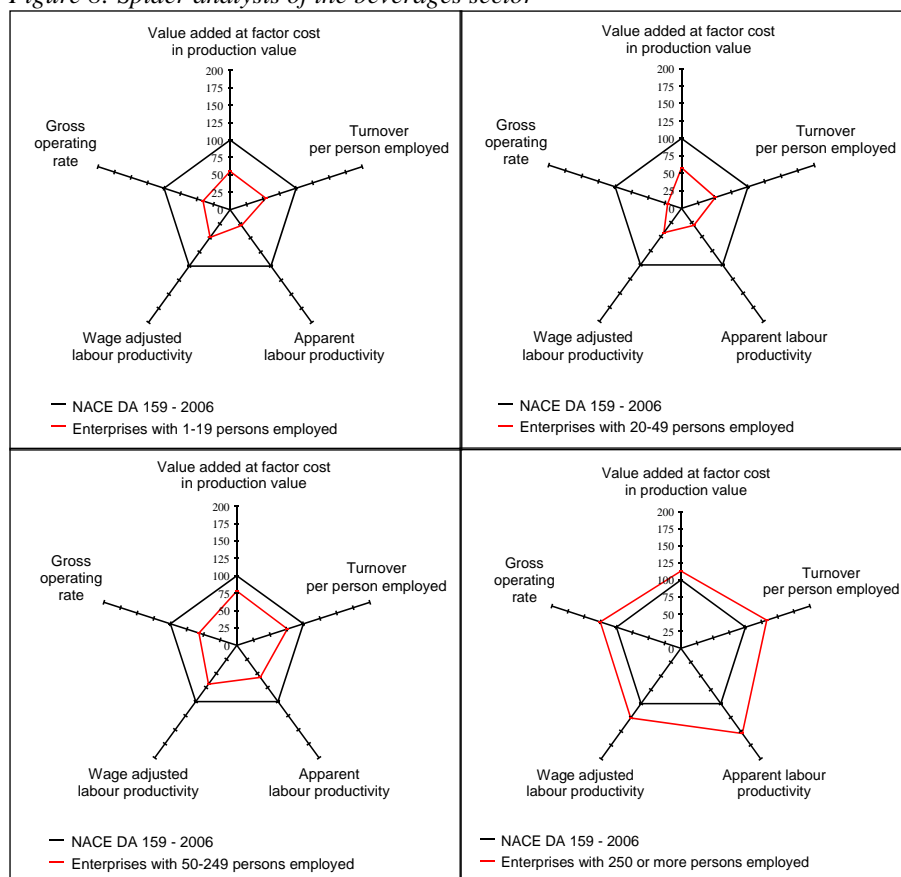


Source: Eurostat (SBS size class)

To the contrary, the situation in the sector of beverages' manufacturing is different, the best economic position can be seen at the biggest size category of enterprises – values of all indicators reach about 125-150 % of the values of the total sector indicators. Their strong market position enables to generate high value added, turnover, productivity and also profitability. The position of smaller producers is worse, because they cannot compete against big distribution and retail companies as their big competitors.

This is the cause of the high level of innovation which could be seen during the last period and is characteristic not only for alcoholic products but also non-alcoholic. Some smaller companies cannot afford it and their economic results are worse because the competition is very tough in the Czech beverages market. Sector is dominated by multinational enterprises that are supporting their world brands by massive advertisements. Despite this hard competition some small and very small breweries are very successful in their local markets thanks to their specific products. But their production is very small to affect the economic results of their size category.

Figure 8: Spider analysis of the beverages sector



Source: Eurostat (SBS size class)

CONCLUSIONS

The results of analysis have proved diverse economic position of enterprises in various size categories in the two evaluated food sectors. Whereas in the meat processing sector smaller enterprises reached better economic results in the last time, in the sector of beverages' manufacturing decisive subjects became bigger processors.

The position of small producers in the meat sector is relatively strong at least from the share on value added and turnover view point. But the situation of agricultural suppliers to this sector is worse. The price of pig meat is going down steadily for couple of years and despite the Czech Republic is not self-sufficient in pig meat production, some processors were forced to close down their facilities because of cheap imports even that some of them were one of the most modern in the Europe. The situation for small pig producers is liquidating, they can't compete to large producers because of higher costs. The other situation is in beef production, where it can be witnessed rising demand for quality meet and this specialisation can be the way how to compete with imports of meat from Slovakia, Germany and Brazil. Contrary to old EU countries the partnership among farmers and meat processors is not so well established and in upcoming years it is important to concentrate on cooperation in innovation and production of new private brands. There is also necessity to pay higher attention to feeding, breeding and labelling which will lead to higher customers' confidence. This will lead to better position not only in EU, but also in third countries markets.

The situation in the beverages market is rather different. The sector is dominated by multinational companies, which is visible mainly in beer production that has in this sector

in the Czech Republic crucial position. There is also rising number in private breweries which are targeting the very local market and for them there are crucial quality, product specialisation and difference. Small farms have the whether to produce the common products that can be sold not only to beer or spirit producers but also to other sectors (as wheat or barley) or they can specialise for high quality production as for example malting barley.

Remarks to general implications

In the present agribusiness the successfulness of farming is influenced by extent and forms of imperfect competition at the subsequent vertical stages. Hence, positions and perspective of farming are substantially affected by competitiveness of processing sector. Costs, effectiveness and production quality of food processors become decisive factor in formation of conditions for agricultural production usage on both domestic and foreign markets. There is no doubt, that the extent of this influence differs according to character of agricultural commodities and depends both on technological and transport possibilities of sales to foreign food processors and on the position within the given commodity chain.

Increasing competition makes farmers and the other firms in agribusiness to look for possibilities to strengthen their competitiveness, which is increasingly determined by the ability to develop successful partnerships within commodity verticals. However, the use of agricultural contracts is controversial. Contracts may lead farmers to exchange price risks in the market for unexpected contracts risks. Under some circumstances, contracts may allow buyers of agricultural commodities to exploit market power by deterring other buyers from entering a local market or by allowing the buyer to reduce price paid in related spot markets. On the other hand, contracts frequently provide farmers with important benefits, such as reducing costs associated with uncertain income streams. Contracts can lead to reduce processing costs and provide consumers more customized and affordable products.

Food companies face increasing pressure to document where and how their products were produced and distributed through the food system, from farms to processors to consumers. Such traceability facilitates food safety and pollution control, as well as the identification of differentiated products with valuable but subtle quality characteristic. Because contracting provides one way to achieve traceability, it can be expected that the share of contracts in agricultural production will continue to grow over the next decade.

The main arguments for vertical coordination in the Czech Republic may be deducted. They include (a) huge and fast expansion of retail sector, (b) increasing competition on particular vertical stages and the necessity to look for possibilities of cost savings and economies of scale, (c) requirements on growth of labour productivity by way of specialization, concentration and investment in modern technologies, (d) requirements on stability of raw commodity quality for processing.

For the Czech agriculture and processing sector it is furthermore important to innovate production and to improve production-technical base. It is necessary to increase the share of products with high value added. As well so-called functional food² and also bio-food become progressive products. It is obvious that not only additional investment is necessary but also tight connection between domestic farmers and processors and cooperation at domestic and foreign sales. Cooperation of farmers, processors and distributors on the

² *Functional food any fresh or processed food claimed to have a health-promoting and/or disease-preventing property beyond the basic function of supplying nutrients.*

contract basis could become a solution to better the position of particular subjects on various vertical stages.

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