

Cartels and their behaviour on food markets

LUCIE SEVEROVÁ¹, STANISLAV BENDL²

¹Department of Economic Theories, Faculty of Economics and Management, Czech University of Life Sciences Prague, Prague, Czech Republic

²School & Social Pedagogy Department, Faculty of Education, Charles University in Prague, Prague, Czech Republic

Abstract: Collusive oligopoly is an oligopolistic market model with several companies producing the same or similar products (services) and acting in the market as a monopoly. The goal of the paper is to find out whether the collusive oligopolies are created in the food-products market, in what range the cartel agreements appear in the given sector and whether they can notably influence the price level of the food products and therefore have an important impact on consumer demand in the Czech Republic. The result of the analysis is that, although a substantial part of the agro-production arises outside of the oligopolistic structure (in conditions of monopolistic competition among small agricultural producers); the trade with these products is mainly held in oligopolistic sectors.

Key words: agro production, baking companies, cartel, food market, oligopoly competition

Oligopoly can be defined as a market model of the imperfect competition type, assuming the existence of only a few companies in a sector or industry, from which at least some have a significant market share and can therefore affect the production prices in the market.

The basic theoretic model of the oligopoly competition behaviour in the conditions of the post-industrial society introduced by Samuelson and Nordhaus (2005) is a basis for the firm's oligopoly behaviour investigation for most of the mainstream economists. The development of this theory of oligopoly in the concrete market sector conditions is determined especially by the Varian's microeconomic analysis of an oligopoly sector; it is particularly focused on the definition of a product group. Both the neo-classic and the neo-Keynesian economic theories (Schiller 2010) note not only a differently defined types of collusive oligopoly, oligopoly with a dominant firm or duopoly models, but they also underline the need of the government control over the oligopoly's market behaviour, even if there are notable differences in the particular approaches. The price competition in oligopoly has other forms than a cartel. Janssen and Roy state the following: "As the prior probability of high quality converges to zero, the fully revealing outcomes converge to competitive marginal cost pricing (the Bertrand outcome). In contrast, when

the prior probability of quality being high converges to one, market power of high quality firms (sustained by out-of-equilibrium beliefs) may persist and the limiting outcome may not be the competitive Bertrand outcome (even though incomplete information vanishes in the limit)" (Janssen and Roy 2009). Kahneman in his papers (Tversky and Kahneman 1979, 1992) deals with the question of the subjects' behaviour on risky markets, that is under the conditions of risk and uncertainty; that is how he introduces the behaviourism in the economic thinking.

MATERIAL AND METHODS

The goal of the paper is to find out whether the collusive oligopolies are created in the food-products market, in what range the cartel agreements appear in the given sector and whether they can notably influence the price level of the food products and therefore have an important impact on consumer demand in the Czech Republic. A partial goal is to investigate, on concrete cases, how efficient are the current fines levied on firms by the Antimonopoly Bureau.

The main methods used for the scientific investigation are: the method of description (the description of single cases of cartel agreements), the economic-mathematic modelling method (used for modelling

Supported by the Ministry of Education, Youth and Sports of the Czech Republic (Project No. MSM 6046070906).

of the maximum profit of collusive oligopoly), further the historical method, the method of analysis and synthesis and partially also other methods.

While elaborating the study, the source was the public data from the Office for the Protection of Competition (ÚOHS) about the most significant detected and sanctioned cartel agreements in the years 1990–2008 in the food production sector (Agriculture – information ... 2008). The next source was a statistical study presented by the Incoma company about the firm's turnovers in the field of food production in the years 2008 and 2009 (Incoma 2009). For the theoretical part elaboration, the publications of famous American economists, dealing with the issues of the oligopoly market structures and market risk, published by Šrédli (2010), were used.

Many models of oligopoly are found while studying oligopolistic structures. These models differ from each other mostly in the nature of the competitive companies' behaviour. Despite of this (according to Samuelson and Nordhaus 2005), these different models agree in several assumptions:

– *The existence of a small number of companies in a sector*

It usually regards big companies with a decisive part in the offer of a sector. Some models describe only the behaviour of two companies in the monitored market (duopoly), others describe several companies of the same power (cartel), still others assume that one of the companies has a dominant position in the market, etc.

– *The nature of production*

In oligopolistic sectors, companies can make either homogeneous or heterogeneous (substitute) production. If the companies create goods close to the homogeneous type, we talk about homogeneous (or clean) oligopoly. In such a sector, the competition creates a tendency towards the united and balanced market price of goods, because there is an especially strong dependence of companies on each other, and therefore even the slightest change in price by one of them significantly affects the behaviour of other companies. An often mentioned example of the homogeneous oligopoly is oligopolistic competition in the production of agricultural crops (corn, bananas, coffee, etc.), where several large companies have an almost identical production.

If companies in oligopoly create differentiated goods and services that are substitute to each other, we speak about heterogeneous oligopoly with differentiated market prices. The differences among products of the individual oligopolistic companies are usually not significant, we speak about close substitutes. The sectors of the production of meat

and meat products, pastry, confectionery, etc. can be named as examples of producing differentiated products in the food industry. At the same time, competition exists both in the price and non-price forms, represented by product innovations and advertisement. "It also motivates successful producers to invest in innovations, in plant modernization, and new technologies and production systems, which leads to a quicker adaptation of the production structure to demand signals and thereby to the precondition of competition ability of producers" (Bečvářová 2011). "It is not about food per se, but about the relations within which food is produced, and through which capitalism is produced and reproduced" (McMichael 2009).

In connection with the analysis of heterogeneous oligopoly, where output is differentiated, a problem of delimiting the market of the given product arises. Should we for example analyze the "pastry market" as such, or the individual markets based on the kind of pastry? The concept of product line helps to solve this problem; or one can accept the Varian definition of the market or sector, which considers sector as "an aggregate of companies making products that are regarded by consumers as close substitutes" (Varian 1992).

– *Limitation (barriers) of the entry of new companies into a sector*

It allows a longer-lasting existence of several big companies in a sector. Typical forms of barriers against the entry of new companies into an oligopolistic sector are relatively high costs of capital needed to start a new company, patent limitations and the preference of consumers in relation to the existing companies and arrangements or agreements among the existing companies. If the economy of scale constitutes the barrier against the entry into an oligopolistic sector, then each company attempting the entry into the sector should reach similarly low average costs in production as the already existing companies in the sector. However, a part of the barriers is not invincible; we can therefore assume a situation when, after overcoming the mentioned difficulties, other companies enter the oligopolistic sector.

– *The possibility of every company in a sector to make real estimates regarding the reactions and actions of its competitors*

This possibility is given by the fact that – contrary to a monopolistic competition – there are only few big companies in the sector, and it relates to the fact that each company is able to affect the change in the total offer of the sector by changes in its own offer. If a competitor is to react to a change in market price (market amount) of a company, this change must af-

fect the change of his/her market price and market amount. This forces him/her into a retaliatory action.

Model of collusive oligopoly

Collusive oligopoly is an oligopolistic market model with several companies producing the same or similar products (services) and acting in the market as a monopoly. Agreements are often made among oligopolistic companies with a significant part in the market; these agreements on cooperation and common action then give rise to the market structure called *cartel*.

Cartel agreements can be made:

- about the same (monopolistic) prices of production,
- about the size of production (quantity quota),
- about the territorial division of the market.

During their formation, cartels tend to raise prices and/or restrict quantities. Assuming fixed capacities in the short run, a low utilization rate of capacities of the cartel members is expected (Blackenburg and Geist 2011). Cartels often originate especially among strong companies in some oligopolized sectors of national economies, but in the world market as well (for example the Organization of Petroleum Exporting Countries – OPEC, which is an example of market situation, where the national economies, not companies act oligopolistically). The purpose of cartel is the effort to maximize the total profit of the given sector.

The common profit of cartel can be expressed as the difference between total profits of the cartel (TR_k) and the sum of the total costs of all its members:

$$\pi_k = TR_k - [TC_1(q_1) + TC_2(q_2) + TC_3(q_3) \dots + TC_n(q_n)] \quad (1)$$

$$P \times Q - [TC_1(q_1) + TC_2(q_2) + TC_3(q_3) \dots + TC_n(q_n)] \quad (2)$$

The condition of maximizing the common profit of cartel is expressed by the equation:

$$\frac{\delta \pi_k}{\delta q_i} = MR(Q) - MC_i(q_i) = 0 \quad (3)$$

Then it holds:

$$MR(Q) = MC_i(q_i) \quad (4)$$

In our model of collusive oligopoly, we will assume that there are three companies in the sector and they have the same cost curves and the same price strategy. The optimal output of a collusive oligopoly in a simplified example of only three companies in the sector is shown in Figure 1.

The marginal revenue of the entire cartel $MR(Q)$ is derived from the market demand function for production in the sector D . The curve ΣMC originates as the horizontal sum of the curves of long-term marginal costs of three companies in the cartel. At the point of intersection of the curve MC and the curve $MR(Q)$, this equality is true:

$$MR(Q) = MC_1(q_1) = MC_2(q_2) = MC_3(q_3) \quad (5)$$

and so the optimal output of cartel will be Q_E .

The profit of the cartel will be maximal when making such production (Q), with which an increase in the total profit of the cartel [marginal revenue $MR(Q)$] is of the same size as an increase in the total costs of each of the three companies in the cartel [marginal costs $MC_i(q_i)$].

The level of the price of production of the cartel will be P_k and its common level is respected by all three companies while performing their sales.

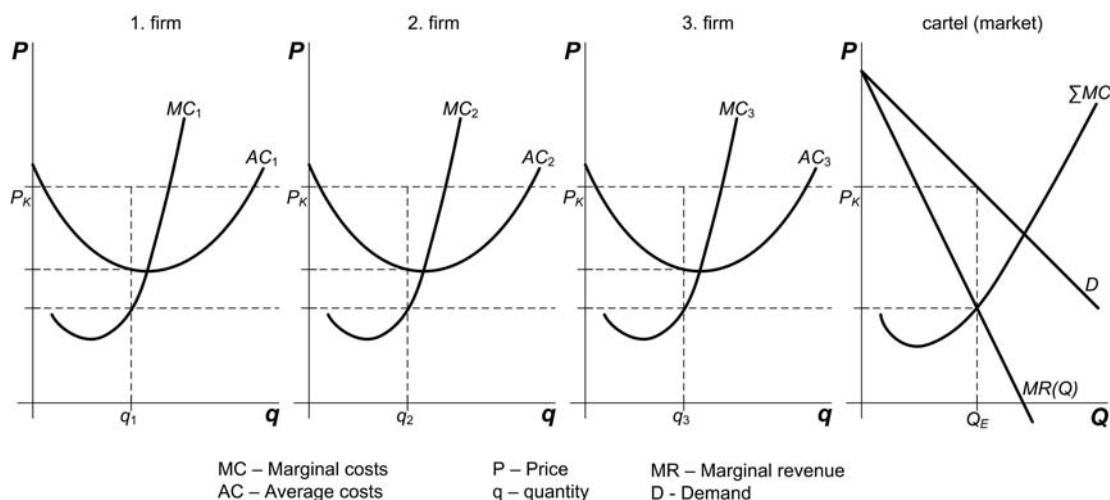


Figure 1. Optimal output of collusive oligopoly

Source: Samuelson (2005)

Solution of the collusive oligopoly (cartel) model in the sector of food processing industry

Member companies of the cartel Nestlé and Kraft sell cooking chocolate in the Czech Republic. They know the market demand curve for the production in this homogeneous sector, which is $Q = 48 - P$. Assuming zero costs of the companies (it can be done for simplification)

$$\max. \pi = \max. TR \quad (6)$$

Calculating the profit of the cartel:

$$Q = 48 - P \Rightarrow P = 48 - Q \quad (7)$$

$$\pi = TR - TC = P \times Q - TC \quad (8)$$

if $TC = 0$, then

$$\pi = P \times Q = (48 - Q) \times Q = 48Q - Q^2 \quad (9)$$

The goal of the cartel is maximizing profit (π):

$$\max \pi = \frac{\partial \pi}{\partial Q} = 48 - 2Q = 0 \quad (10)$$

$$Q = \frac{48}{2} = 24 \quad (11)$$

The optimal amount of cooking chocolate (Q_E of the cartel) will be 24 units, the price of the product unit will be given by the function

$$P = 48 - Q = 48 - 24 = 24 \quad (12)$$

that is at the level of 24 money units, and the total cartel profits will be determined from the function

$$\pi = 48 \times Q - Q^2 = 48 \times 24 - 24^2 = 576 \quad (13)$$

or more simply from the relationship

$$\pi = P \times Q = 24 \times 24 = 576 \quad (14)$$

that means they reach the amount of 576 money units.

Certain problems can come up when organizing an oligopolistic sector by the form of cartel. If the companies of the cartel act in agreement, they create a market situation close to monopoly. The companies set high prices, they do not raise their production and they do not try to compete with each other by lowering prices. In this situation, all companies of the cartel make a clean economic profit at the expense of consumers.

However, sometimes one of the companies of the cartel decides to compete with others by lowering prices, for example in the effort to reallocate the market (due to its saturation) to the company's own benefit. This leads to a "price war", when the companies

overtake each other in lowering prices, trying to lure the consumers away from the competing companies. Most of the customers benefit from this increase in the price competition, they can buy goods cheaper (in the past, for example a significant decrease in prices of personal computers happened in this manner). There are also situations when the member companies of the cartel try to secretly increase the size of the produced output (its quota); some countries from the OPEC can serve as an example with the oil extraction. Considering the fact that cartel agreements are forbidden in most countries, it is not possible to enforce the adherence to them by legal means.

According to our valid laws, the following are considered as the agreements distorting competition described in the Act No. 143/2001 Coll. on the protection of economic competition:

- agreements between/among competitors,
- resolutions of association of entrepreneurs,
- acts of entrepreneurs in mutual agreement that lead or can lead to the distortion of economic competition in the goods market.

This is under the condition that the mentioned law or another law does not establish otherwise or that the Office for the Protection of Competition (further just the ÚOHS or the Office) – does not allow an exception; otherwise, agreements are forbidden by the law or they are invalid. While judging cartel, it is not important whether its participants act with the intention to restrict competition, or whether the restriction of economic competition arose unwillingly and unconsciously; the principle of fair-mindedness holds in these cases. According to the mentioned law, all conducts that fulfil the characters of cartel are considered as cartels. Listing of specific examples can therefore be only demonstrative.

RESULTS AND DISCUSSION

Application of the presented model on the food sector conditions

For the analysis of the consequences of cartel behaviour of firms in the food production sector, first it is necessary to become acquainted with specific cases of notable cartel agreements, which were uncovered and sanctioned by the ÚOHS in the years of 1996–2009 in the Czech Republic.

Especially, it was the case of:

– Bakeries

The Antimonopoly Office repeatedly decided to impose a fine of 52.8 million CZK for the cartel of

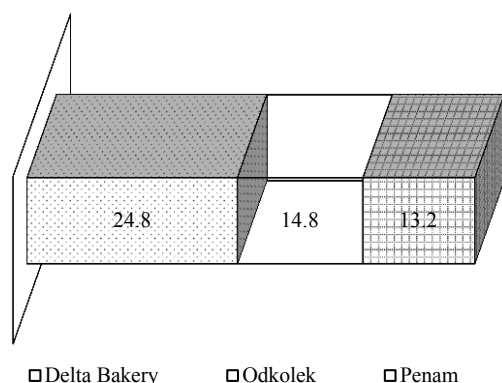


Figure 2. Fines for baking companies in mil CZK

Source: Agroweb (2009)

baking companies Delta Bakery, Penam and Odkolek in the sector of baking products. Based on the verdict of the ÚOHS, the Delta Bakery is supposed to pay 24.8 mill. CZK, the Odkolek 14.8 mill. CZK and Penam 13.2 mill. CZK (Figure 2). The Antimonopoly Office proclaims that, at the latest since 2003, the baking companies were colluding on a raise in the prices of pastry, bread and confectionery with their customers. Afterwards, they sent out an announcement about the raise in prices of the named products to their customers. This coordinated action allowed these competitors to reach better negotiating positions towards their customers than if each of them acted in the market completely independently. Without the mentioned anti-competition conduct, a raise in the prices of baking products in such a short time-period, massively by all chain stores, would not have to happen. Not the rise in the prices of pastry itself, but the common action of baking companies against the customers when raising prices, was considered as

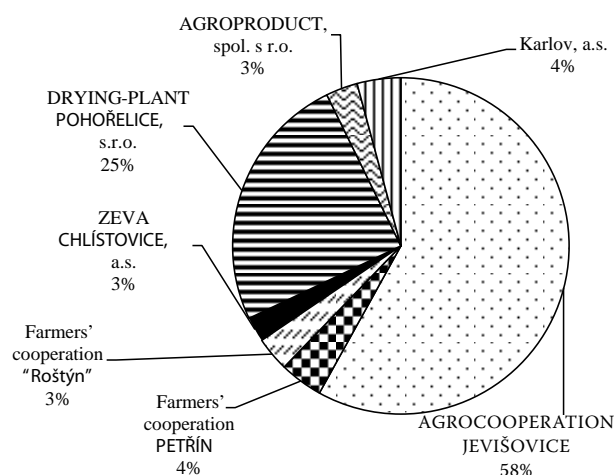


Figure 3. Fines for poultry producing companies in mil CZK

Source: Agriculture – Information ... (2008)

the mentioned conduct. At the same time, the Office forbade a similar behaviour to all these companies for the future (Agroweb 2009).

– Poultry

Second example of cartel behaviour in the area of agro- production can be a situation when the competitors the AGROCOOPERATION JEVIŠOVICE, the Farmers' Cooperation PETŘÍN, the Farmers' Cooperation "Roštýn", the ZEVA CHLÍSTOVICE, a.s., the DRYING-PLANT POHOŘELICE, s.r.o., Karlov, a.s. and the AGROPRODUCT, s.r.o. agreed on the 13th of December 2006 in Jevišovice on a common strategy of setting the selling prices of slaughter chicken, valid from the 1st of January 2007. The aim was to gradually reach the price of at least 20.0 CZK per 1 kg of liveweight in the I. quality class, especially with their most significant common customer, the Kostecké uzeniny a.s. The mentioned companies at the same time agreed on a common action and on the participation in a negotiation about raising the selling prices of slaughter chicken with the mentioned customer on the 14th of December 2006, and consequently they successfully proceeded with this strategy. It is evident that in the case of the absence of a mutual agreement, its participants would not be able to reach the rise in selling prices of broilers in such a short period of time. The participants of the conduct must have been aware of the fact that their action is capable of affecting the price level of chicken, which also happened (consequently, also the retail price of poultry for final consumers increased). The ÚOHS confirmed fines to seven poultry producers for the illegal cartel agreement. The sanction in total amounts to 14.208 mill. CZK. When determining the amount of the fine, the ÚOHS considered the sales of the companies; the highest sanctions were given to the companies that played an initiatory role in the cartel (the AGROCOOPERATION JEVIŠOVICE and the DRYING-PLANT POHOŘELICE, s.r.o.). Owing to the fact that – with the exception of the Farmers' Cooperation KARLOV – all participants of the affair reached economic profit in 2006, the set sanctions are not liquidating (Figure 3).

– Other examples of the cartel behaviour

- The distillery STOCK Plzeň-Božkov company tied selling drinks Fernet Stock to the consumption of other types of alcoholic beverages – the initial proposition was a fine of 5 mill. CZK, but the ÚOHS lowered it to a fine of 4 mill. CZK in April 1996.
- The ÚOHS did not deal with the behaviour of agricultural primary producers for the first time. An example may be the cartel of poultry producing

- companies from the year 1999. The poultry producing companies Libuš, the Integral Vrchovina, the Moravia-Silesia poultry factory PROMT and South Bohemian Poultry acted in a mutual agreement while negotiating prices for the supplies of cooled and frozen chicken to chain stores. In their proposals to increase prices of these goods, these companies identically, starting with the date of April 19, 1999, implemented the intention not to sell these goods under the price level of 56 CZK per 1 kg of cooled chicken and 54 CZK per 1 kg of frozen chicken. The mentioned companies had to pay 20 000 CZK each, based on the resolution of the ÚOHS.
- The AGROPORK – announcement of the purchase price of pork. The ÚOHS punished the cooperation of pork meat producers, the “Agropork – Cooperation”, with the fine of 150 000 CZK for the (forbidden) decision of the cooperative board to announce purchase prices for 1 kg of liveweight of slaughter pigs at 30 CZK, with the effect from June 21, 1999. This decision was a part of the record from the common meeting of the boards of the Agropork Náchod and the Federation of Producers of Pork Meat, Poultry Meat and Eggs, which took place on June 16, 1999 in the OAK Havlíčkův Brod.
 - BILLA and JULIUS MEINL – the cartel. Companies BILLA and Omega Retail (earlier JULIUS MEINL), which together coordinated and adjusted their purchase prices of goods and trading conditions towards their suppliers in the years 2001 and 2002, were under the obligation to pay 23.8 mill. CZK and 19.55 mill. CZK, respectively. These companies committed a price cartel when they were exchanging information about their purchase prices and the bonus and discount systems. They compared this information and from their suppliers, they demanded levelling of their up-to-date financial conditions for the purchase of goods to the level of the other participant of the conduct (if these were more convenient), moreover, they also demanded financial compensations to balance the incurred differences. The requirement of both companies for the additional payment, the so-called alliance bonus, was illegal as well; it was basically only justified by the possibility to supply the same product line to both trade networks. In case of disagreement with the set conditions, the suppliers were exposed to the threat of the participants of the conduct pulling out of the contract. In the opinion of the ÚOHS, the fines are not liquidating, but at the same time, they can be considered perceivable enough, and therefore capable of discouraging the participants of a conduct constituting breaking the competition law in the future.
 - POTATOES – reducing prices in the supermarkets. On December 8, 2003, the ÚOHS started an administrative procedure with the companies AHOLD Czech Republic, BILLA, Carrefour ČR, DELVITA, Globus ČR, JULIUS MEINL, Kaufland ČR, PLUS – DISCOUNT, SPAR Czech trading company and Tesco Stores ČR. The possible breach of the law for protection of the economic competition was seen by the Office in the agreement or action in common accord of the participants of the procedure when setting the level of selling prices of potatoes for final consumers. When checking the level of selling prices, the Office – among other facts – also found out that the selling price of 2 kg packaging of potatoes ranged between 29.50 CZK and 32 even 34 CZK, while in the premises of seven participants of the procedure, the same level of selling price – 29.90 CZK per 2 kg packaging of potatoes – was discovered. After the evaluation of all facts and the evidence gained during the course of the administrative procedure, it was not proven by the ÚOHS that setting of selling prices of potatoes by the participants of the conduct and their level were the consequence of breaking the law.
 - The CZECH FEDERATION OF MEAT PROCESSORS. In November 2003, the Office imposed a fine of 100 000 CZK to the Czech Federation of Meat Processors (ČSZM) for violating the law on the protection of economic competition. The ČSZM recommended to its members in January 2002 to transfer the costs connected with the mandatory check-up of slaughter cattle for the BSE to the suppliers. The costs were in the amount of 1500 CZK per head in the case of cows and in full amount in the case of bulls and heifers older than thirty months. This behaviour could have disturbed the economic competition in the market with the supplies of slaughter cattle designed for processing. Violating the law was not intentional; it lies in the level of negligence. The amount of the fine is therefore in this case supposed to have a precautionary and educational function.
 - The Company Pilsner Urquell, A.S. (the brewery Radegast) – prohibited agreements in contracts to ensure the advertising and promotion of hospitality obliged the pubs to buy the minimum amount of hectolitres of beer each year. The ÚOHS levied them the fine of 3.5 million CZK, but in the second stage in 2003, it was reduced to the fine of 2.3 million CZK. The party filed the suit with the Regional Court in Brno, but they later withdrew it.
 - The BREEDERS – cartel. The ÚOHS awarded in its resolution from autumn 2002 a fine of the total amount of 2 570 000 CZK for a price cartel bargain

regarding the insemination doses of breeding bulls among eight breeding companies in the market of rearing and breeding cattle. This cartel bargain led to the unification of prices of these products and had negative effects especially on cattle breeders, who had a limited possibility of choosing a product regarding the price and quality. It cannot be ruled out that the price agreement led in its final consequence also to an unnecessary raising of prices with negative effects on the final consumer. The cartel bargain with its effects applied to the entire country and competitors in a sum exceeding 50% of the market. The company Holding Czech-Moravian Breeding Union had to pay the highest fine of 500 000 CZK, other sanctions are as follows: the South Bohemian Breeder – 300 000 CZK, the REPRO GEN – 300 000 CZK, the PLEBO BRNO – 300 000 CZK, the AGRO – Měřín – 300 000 CZK, the Breeders Brno – 270 000 CZK, the CHO VSER – VIS – 300 000 CZK, the BREEDING SERVICES – 300 000 CZK. The mentioned companies committed these anti-competitive actions in the years 1998–2001; the existence of the cartel including the assigned fines was confirmed by the Regional Court in Brno (Agriculture – Information... 2008).

- KOFOLA A.S. – The disciplinary penalty for the failure to provide a complete, truthful and correct information and documents during the administrative proceedings. The sanctions were imposed in the first instance on July 25, 2008 in the amount of 11.836 mill. CZK. In the second instance in Au-

gust 2009, the President of the ÚOHS Peter Rafaj reduced the fine to 4.855 mill. CZK.

- KARLOVARSKÉ MINERÁLNÍ VODY A.S. – Prohibited vertical agreements for the export ban – the first instance decision in the settlement procedures was issued in December 2009. The penalty in the amount of CZK 5 mill. was levied.

The Table 1 summarizes the amounts of fines levied by the Antimonopoly Bureau for the single cartel agreements, demonstrably concluded within the food production sector in the period of 1996–2009.

Data and the applied model evaluation in the given market environment (sector)

As it is obvious from the precedent table, the sum of fines levied by the Antimonopoly Bureau for cartel agreements in the food sector in the observed period reached the amount of CZK 129 442 000.

In the terms of the agri-food vertical, we can divide the fines into two large groups, the fines levied on food producers (86 092 000 CZK), and the fines levied on food traders (43 350 000 CZK). The fines levied on food producers constitute almost two thirds (66.5%) of the total sum, which is interesting regarding the reputation of the traders.

If we compare the summarized amount of fines for cartel agreements of the convicted firms in the observed period with the turnovers of the particular food sellers, it is possible, from what has been stated, to express the motivation character of the levied sanctions. The ÚOHS itself admits in its study (Agriculture – Information... 2008) that the levied sanctions shall not have a liquidating character for the punished firms in the sector, but they should rather have an educational influence.

Hence, it is of a high sense to determine the ratio of the fine according to the amount of the annual turnover of particular firm.

- For a creation of collusive oligopoly in the years of 2001–2002 in the form of price cartel, the firms Billa (REWE branch) and Omega Retail (former Julius Meinl) were sanctioned by the Antimonopoly Bureau with the fines of 23.8 mil. and CZK 19.55 mill., respectively, for a collective coordination and tuning of the goods prices and terms of trade. For comparison, the turnover of the Billa reached the total of CZK 18.5 billion in 2008 and even more in 2009, CZK 19 billion, although it was already the economic recession period. Basically, the sanction is approximately one thousandth of the annual turnover of the firm. The profit of the Billa in the

Table 1. Fines levied in the food production sector

Cartel's business	Fine in thousands of CZK	Year
Liquors	4 000	1996
Poultry	80	1999
Pork	150	1999
Food store – Billa	23 800	2002
Food store – J. Meinl	19 550	2002
Cattle (breeding)	2 570	2002
Brewery	2 300	2003
Bakery	52 800	2003
Meat processing	100	2003
Poultry	14 208	2007
Mineral waters	5 000	2009
Kofola	4 855	2009
Summary	129 442	

Source: Agriculture – Information ... (2008)

year 2008 amounted to 115.6 mill. CZK; in 2009 it even reached the amount of 357.6 mill. CZK. In the investigated case, it is possible to agree with the Antimonopoly Bureau evaluation and with the statement on the impact of the fine for the firm's economy ... "the fines are not liquidating, but at the same time they can be considered perceivable enough, and therefore capable of discouraging the participants from a conduct leading to breaking the competition law in the future" (Agriculture – Information ... 2008).

- If we make a presumption that three quarters of the whole food production (expressed by the turnovers) get to the final consumer through supranational store chains, it is interesting to compare the sum of the levied sanctions for cartel agreements in the food production sector with the annual turnover of these supranational food chains. However, we have to consider that food creates about 80% of the total turnovers. The total amount of the levied fines by the Antimonopoly Bureau reached CZK 129.4 million in the period 1996–2009. To compare, the turnover of the main food chain stores reached CZK 210 billion in 2008 and CZK 219 billion in 2009. That means, if the average annual fine in the food sector production in the given period was CZK 9.25 mill., this analysis supports the statement of the Antimonopoly Bureau.
- According to the legislation, the indicator of the turnover of a company is crucial for determining the amount of the levied fine due to the cartel behaviour of firms in the EU; the fine for a cartel can be set up to 10% of the annual company turnover. The indicator of profit cannot be used for determining the fine, because then the firms reaching long-term losses (e.g. Lidl) due to a high investment (and therefore depreciation) could not be penalized.

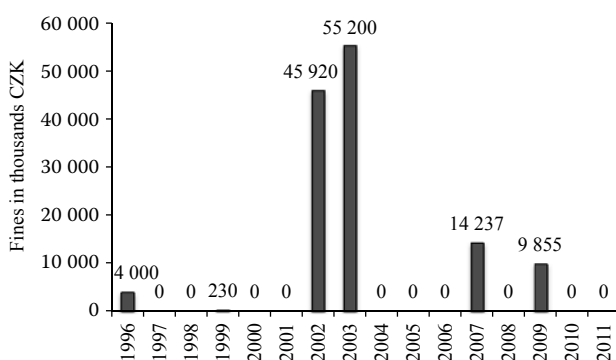


Figure 4. The fines in 1996–2011

Source: Agriculture – Information ... (2008)

- The introductory model of collusive oligopoly with the maximization of profit could be applied only if there were available data concerning the total cost of firms in each year, which would serve to express the total costs function and hence also the marginal costs function. The second problem in the calculation of the maximum profit is the diversity of goods, for the prices regarding which the firms were fined, and the unavailability of data concerning the quantity of goods.

DISCUSSION

Final analysis evaluation

From this point of view, it can appear, while comparing the amounts of fines and turnovers, that the cartel agreements of the food production focused firms are not of a usual appearance, neither have they had any fundamental significance for the food prices setting for the final consumer.

However, it is necessary to realize, that the collusive oligopolies, as a market situation in the given sector of food production, are surely a more usual and more significant phenomenon than they could appear. There is mostly the problem of a successful detection of these illegal practices of the firms and the earning capacity of the agreements is considerable. Also the probability of detection is not very high. Of course there is a certain risk of being found, but "simply, we can say that the risk expresses a situation when the subject decides on the base of the information about the probability distribution of the possible outcomes, which are available" (Šrédl 2010).

Also the practices of some competitors who exchanged information on future raising prices of their products through the media can be indicated as improper in the terms of the economic competition development. Representatives of the biggest bakeries, producers of milk and meat products in the Czech Republic and some others were doing so. A mutual exchange of information about the intended changes in trading conditions – especially about the adjustments of price – is typical for the behaviour that breaks the ban to make cartel agreements about prices, eventually the ban to act in the common agreement in the area of price making. In such cases, the harmonization of trade practices is arranged and the fulfilment of a common strategy is checked by the means of the press. Such behaviour constitutes a violation of the competition law and it can be sanctioned with high fines, as it was illustrated in the given examples of cartel bargains.

CONCLUSIONS

A considerable attention of the media and both expert and laic public is at present given to raising the prices of food and agricultural products, particularly in the context of the current 8.7% annual growth in food prices, especially eggs (124%), sugar (26.3%), bread (19.8%), etc., because this problem touches every citizen. For this reason, the ÚOHS focused its activity in the last few years on the behaviour of farmers, food producers, their chambers and also of the chain stores themselves.

In case of the basic foodstuffs (milk, bread, bakery products etc.), we speak about the demand for non-elastic goods that are necessary in the terms of consumption. Therefore, in a monitored time-period, the cartel bargains of companies happen more often than with other goods. Agreements can significantly harm the interests of consumers, but any specific food sector is so atomized that the mentioned cartel behaviour – if intercepted by the Office in time – cannot dramatically influence the market competition. “These linkages are in general not given the importance they deserve in the contemporary discussions of economic policy” (Schuh 1995).

REFERENCES

- Agriculture – Information List 1/2008 (2008). ÚOHS, Brno, pp. 18–19. (in Czech)
- Agroweb (2009): Pokuty pro kartel pekáren potvrzeny. (The fines for cartel bakeries confirmed.) Available at http://www.agroweb.cz/Pokuty-pro-kartel-pekaren-potvrzeny__s43x32743.html (accessed 2009-02-09).
- Bečvářová V. (2011): Economic and regional consequences of direct payments under the current CAP philosophy. *Acta Universitatis Agriculturae et Silviculturae Mendeleianae Brunensis*, 51: 19–25.
- Blanckenburg K., Geist A. (2011): Detecting illegal activities: the case of cartels. *European Journal of Law and Economics*, 32: 15–32.
- Incoma research [online]. Available at <http://www.incoma.cz/cz/> (accessed 2009-12-05).
- Janssen M.C.W., Roy S. (2009): Signaling quality through prices in an oligopoly. *Games and Economic Behaviour*, 70: 192–207.
- McMichael P. (2009): A food regime analysis of the ‘world food crisis’. *Agriculture and Human Values*, 26: 281–296.
- Samuelson P.A., Nordhaus W.D. (2005): *Economics*. McGraw-Hill, Columbus.
- Schiller B.R. (2010): *The Micro Economy Today*. McGraw-Hill, Columbus.
- Schuh G.E. (1995): The world food problem and population-growth. *Proceedings of the American Philosophical Society*, 139: 240–246.
- Šrédľ K. (2010): Behaviour of Subjects in Risk Markets. *Agricultural Economics – Czech*, 56: 224–230.
- Tversky A., Kahneman D. (1979): Prospect theory: An analysis of decision under risk. *Econometrica*, 47: 263–291.
- Tversky A., Kahneman D. (1992): Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, 5: 297–323.
- Varian H.R. (1992): *Microeconomic Analysis*. Norton, London.

Received: 23rd April 2012
Accepted: 1st August 2012

Contact address:

Lucie Severová, Czech University of Life Sciences in Prague, Faculty of Economics and Management, Kamýcká 129, 165 21 Praha 6, Czech Republic
Stanislav Bendl, Charles University in Prague, Faculty of Education, M. D. Rettigové 4, 116 39 Praha 1, Czech Republic
e-mail: severova@pef.czu.cz, stanislav.bendl@pedf.cuni.cz
