

The changes of the agribusiness impact on the competitive environment of agricultural enterprises

Vliv změn v agrobiznisu na konkurenční prostředí zemědělských podniků

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Abstract: The market extension generally affects growth performance positively by allowing an expansion of markets, by increasing outside competition as well as by more rapid diffusion of new products, processes and research output between national economies. The positive effects of considerable market on productivity are indubitable. However, two other weighty phenomena of the process are necessary to investigate, effects of regulatory policy and market power exhibits. Agriculture as a sector belongs to those, where the support policies exist for a long time. Nevertheless, the last decades have witnessed considerable changes in this sector among most of developed countries and their agricultural/regulatory policies. It has been perceived, that the agriculture for 21st century cannot be separated from the other components of agri-food sector. The economic importance of the processing and finalization stages (i.e. food industry and food distribution) has increased over time. There are concerned inter-relationships between the market structures development and the crucial factors of the interconnected markets developments in the framework of production verticals of agricultural commodities. Reflecting the steadily more sophisticated supply side behaviour, solution is based upon the demand oriented approach explaining changes of the position of agriculture within the agri-food chain. Conflict of interest between the regulatory/agricultural policy and the market power of input supply and output processing firms and retail notably has increased dramatically. Economic manifestation of the increasing market power on the demand side as well as the impact of market interrelationships and change of policy regulation efficiency within commodity chains are characterised there. The position of agriculture within the agri-food chain has changed and the influence of farmers has decreased. Success of agricultural enterprises in achieving their operational goals is still more influenced by improvements in productivity and by competitiveness of other "links" of the agri-food chain.

Key words: agribusiness, agri-food chain, food industry, competitiveness, market power exhibit, monopsony, regulatory policy

Abstrakt: Rozšíření společného trhu ovlivňuje pozitivně ekonomický růst daného regionu tím, že dává možnost expanze na větší trhy, narůstá konkurence, současně dochází k rychlejšímu pronikání a výměně nových produktů, postupů i výsledků výzkumu mezi národními ekonomikami. Pozitivní dopady velkého trhu na růst produktivity v dané ekonomice jsou nepochybné. Na druhé straně je však třeba vzít v úvahu dva další důležité vlivy v současném vývoji, a to účinnost regulační politiky a projevy tržní síly. Zemědělství jako sektor patří již dlouhodobě k těm sektorům, u kterých je regulační a podpůrná politika uplatňována. Nicméně v posledním období dochází ve většině hospodářsky vyspělých zemí ke změnám v systému regulačních zásahů v rámci agrárních politik. Je zcela zřejmé, že zemědělství jednadvacátého století není a nemůže být oddělováno od dalších složek agrárně-potravinářského sektoru. Hospodářská důležitost zpracování a finalizace (tj. potravinářského průmyslu a distribuce potravin) se v posledním období výrazně zvýšila. Projevuje se ve vzájemných vztazích a rozvoji tržních struktur a klíčových faktorů vzájemně propojených trhů v rámci výrobních vertikál zemědělských komodit. Příspěvek, při reflexi stále sofistikovanějších přístupů ze strany nabídky, vychází z pojetí poptávkově orientovaných vztahů v rámci potravinových řetězců. Analyzuje ekonomické projevy růstu tržní síly na straně poptávky, důsledky ve vývoji tržních vztahů jakož i změny v účinnosti regulačních zásahů v komoditních řetězcích v rámci agrární politiky. Upozorňuje na růst konfliktu mezi regulační/agrární politikou a tržní silou odvětví vstupů, odvětví zpracovatelského průmyslu a zejména obchodu. Charakterizuje ekonomické projevy růstu tržní síly na poptávkové straně vertikály a jejich vliv na změny v účinnosti regulačních a stabilizačních zásahů agrární politiky. Upozorňuje na skutečnost, že ekonomická důležitost fázi zpracování a finalizace se v posledním období výrazně zvyšuje. Mění se postavení a snižuje se vliv zemědělců v rámci komoditních řetězců. Prokazuje, že na daném stupni rozvoje agrárního sektoru a zejména v budoucnosti bude úspěch zemědělských podniků při dosahování výrobních i ekonomických cílů ve stále větší míře determinován růstem produktivity a konkurenceschopností ostatních „článků“ agro-potravinového řetězce.

Klíčová slova: agrobiznis, agro-potravinový řetězec, potravinářský průmysl, monopson, konkurenceschopnost, projev tržní síly, regulační politika

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Driven by a variety of factors the last decades have witnessed significant changes in the agri-food sector among most of the developed countries. Increased integration of market and the rapid growth have acted as a major stimulus to trade between and within regions and have resulted in major shifts in geographical and commodity distribution. The movement to market-oriented policies in key economies in the recent years has, in general, led to reduction of the extent of market distortion controls and to the promotion of competitive market forces within the context of the changing policy framework.

By definition, these changes also influence the aims, function and further development of European agriculture and the central concept of its agricultural policy. The original Common Agricultural Policy has been changed. The reforms of the 1990's leading up to the Agenda 2000 saw real change in attitude. It has moved away from product support to measures that are production neutral and from more trade distorting measures to far less trade distorting measures in primary agriculture and enforced an integrated approach towards agriculture and food processing. In accordance with the expected accession of the Czech Republic to the European Union, there have gained in importance both economical analyses of new broadened market interactions and impact of economic regulatory efficiency on the industry development.

REVIEW OF LITERATURE

The *market extension* generally affects growth performance positively by allowing an expansion of markets (extended market allows the specialisation of country in industries, that have scale economies, raising productivity; increasing the potential market size also raises the prospective returns to a successful innovation), by increasing outside competition (open market leads especially to improving the allocation of resources towards more productive activities) and common market allows more rapid diffusion of new products, processes and research output between national economies.

The positive effects of extended market on productivity are undoubted. However, two other weighty phenomena of the process of economy globalisation are necessary to investigate:

- effects of regulatory policy,
- market power exhibits.

The public choice theory offers three lines of explanation for *regulatory policy* supporting the agricultural sector in general (e.g. Josling 1969, Rausser 1982, Honma and Hayami, 1986, Gardner 1992, Swinnen and Van der Zee 1994, Munk 1994, Harvey 1997, Cramer and Jensen

1997, Gonenc et al. 2001, Harl 2001) as follows: (1) models of a government maximising social welfare, (2) models, relying on the interaction between governments and voters, and (3) models originated in interaction between market power pressure and regulatory policy.

Two major approaches to evaluation of *market power expression* have been utilised there (e.g. Nickel 1996, Dobson 1999, Aghion et al. 2001, Ahn 2002): (1) empirical studies based upon measures of market concentration or profit margin as indicators of market power application and (2) studies based upon data time series from particular industries or from a few closely related markets to make inference of market power by estimating structural econometric models of the demand and supply relations. These studies could be mostly used for simulation of the development of production verticals of commodities, when different structure and/or extent of support of participants at these markets are considered, e.g. under various alternatives of regulatory policy.

METHODS

Based upon the social welfare maximising theory as a principal methodological approach, the changes within the agribusiness up and downstream and its interactions between the agricultural/regulatory policy influence and the market power pressure are analysed. It means that the change both of the prerequisites of the agricultural enterprises competitiveness and the impact of other linked economic subjects behaviour within agri-food chains on efficiency of economic regulation policy have been evaluated.

RESULTS AND DISCUSSION

Agriculture as a sector belongs to those where the support policies exist for a long time¹. However, the last decades have witnessed considerable changes in this sector among most developed countries and their agricultural policies. The reconsideration of the role of government intervention in the sector has been prompted by a number of globalisation pressures of agricultural and food markets, including changes in the international trade policy, regional integration initiatives, budgetary considerations, and (bio)technological changes.

Conflict of interest between the regulatory policy and the market power of input suppliers and output processing firms and retailers has increased dramatically. In addition, there were broader social pressures, such as

¹ Besides arguing for a "fair" level of income, comparable to that outside this sector, number other reasons have been brought forward. It is not necessary to quote the numerous of protagonists, schools and trends related to this since 18th century.

promoting of sustainable resources use and effective environmental controls at the lowest possible cost, which may be solved through the market mechanism. A principal aim of agricultural policies reforms in recent years has been to reduce the extent of market distortion controls and to promote market forces within the context of the changing policy framework.

It has been perceived, that the agriculture for 21st century cannot be separated from the other components of agri-food sector. The economic importance of the processing and finalization (i.e. food industry and food distribution) has increased over time. Success of agricultural enterprises in achieving their operational goals is influenced by the other “links” of the agri-food chain. Connections to consumers are mostly not direct.

It is not necessary to underline, that farmers produce raw materials for the food industry and/or for the other manufacturing industries. Most of agricultural commodities undergo some form of preservation or transformation before final consumption. Thus from the view of increasing of agricultural enterprises competitiveness, *commercial fortunes of the food industry enterprises become the crucial condition* in the agri-food chain.

The position of agriculture within the agri-food chain

Under the *traditional supply oriented approach*, agricultural enterprises used to play crucial role within the agri-food chains. They were a decisive factor, where commodities (raw materials) were produced and other links of the chain cultivated their products, as in Figure 1.

The *economic importance of the processing and finalization* (i.e. food industry and food distribution) has increased over time. The proportion of consumer expenditures on food taken by food processors and distributors reflects the contribution of these sectors to

food flow to consumers. Food processors and retailers brand and advertise their wares, to maximise their share in consumer’s food expenditures.

The marketing activities of food industry enterprises related to finding and keeping the best place on the market shelves sharply contrast with those of agricultural firms selling into a relatively static agricultural markets, protected by the specific tools of economic policy. It must be taken into account that agricultural policy effects not only agricultural producers, but it also has non-negligible impact on food processors. In the EU and some other countries concerns in the food industry extend beyond borders considered by where the access to agricultural raw materials are influenced by local agricultural policies.

Consequently, the model of agricultural policy affects not only the “primary” production i.e. sourcing of raw materials of the food industry, but the scale of operation of certain branches of industry. It has an impact on the price of agricultural products and thus has the potential to influence not only the competitive position of one branch of the food industry in comparison with another, but also the relative competitiveness of the whole food industry on world markets.

Provided that we utilize the *demand oriented approach*, which implies the consumer as a decisive factor of undergoing structural transformation and development of the world agriculture and the agri-food markets, the relationships become more reliable (see Figure 2).

Position of agricultural policy as a decisive factor of agri-food chain development has been reduced. Other factors as the size and scale as well as who is to manage, control and finance farming and agribusiness operations, market structure in processing stages and retail are playing growing role in determining of the industry development. Mergers, alliances and various other types of arrangements are reducing the number of players in output processing and handling and increasing the level of concentration.

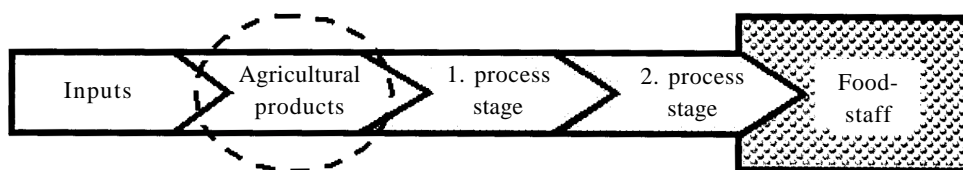


Figure 1. Supply oriented agri-food chain

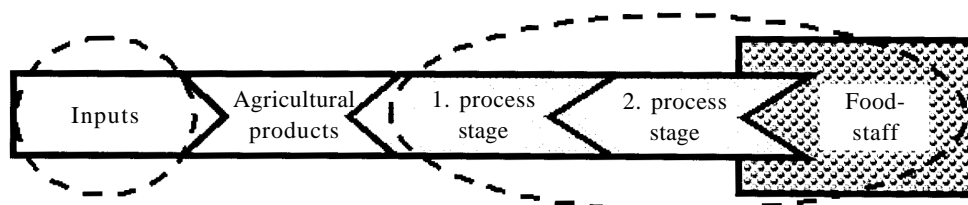


Figure 2. Demand oriented agri-food chain

The rising tide of concentration in food retailing leads to consolidation of suppliers to match the buying power of retailers. They behave as “spokespersons” of consumer influencing demand for food not only from the food security, quality and availability view, but also from the view of price policy within the agri-food chain. The shift of revenues from producers in favor of the other “non agricultural” segments in the agri-food chains and the conflicts between regulation policy incentives and market power exhibition have increased.

The economic regulation policy and the market power influence in agri-food chain

As it was said, the *agricultural regulation policy* affects not only the sourcing of raw materials for the food industry, but also the scale of activities of considerable part of manufacturing sector of the industry and the component of the trade position.

The impact of agricultural regulation policy and the market power exhibition on the food industry’s efficiency and development are different according to branch, type of product etc. As an example, there may be considered a distinction between the “first-stage” processed products and the “second-stage” processed products.

The *first-stage processing* branches could be characterised as those which take raw materials direct from the farm, and either convert them to raw basic ingredients for further processing (e.g. flour, animal fats, some vegetable oils, semi-finished products from fruits and vegetables), or products ready for final consumption (e.g. frozen or canned fruits, wine, treated milk). Some of them, such as butter, sugar, meat, can either be delivered to retail outlets or utilized for further processing. Agricultural origin of the first-stage processed products remains clear.

The *second-stage processing* branches are those, which take raw material ingredients and use them for

such type of goods (food, feed), which are ready for the consumer/customer where indications of their farm origin may be easily lost.

General difference between the first and the second stage of processing may be presented by the share of farm raw materials within direct costs.

The analysis was done for the selected group of food products in the Czech food industry, based upon data from 2001. Results are depicted in Figure 3.

The difference between first and second stage processed food products may be universally characterised as follows:

- *first stage processed food products* = bulk, undifferentiated products with low value added, price takers, significant influence of agricultural policy, predominantly supply driven,
- *second stage processed food products* = individual, branded product lines, higher value added, price setters, significant influence of market power, predominantly demand driven.

From the view of maximising social welfare, *regulation policy* (e.g. price, entry and exit regulation) is sometimes considered as a source of additional costs of consumers for its deteriorating impact on free market. Market distortion regulations may also create allocation inefficiencies by making prices deviate from marginal costs.

Even though regulation could mean a benefit for protected firms by insulating them from competition, it would also restrict their operations and thus create dynamic inefficiencies, as indicated by low productivity growth, slow technological innovation, and poor quality of management. In fact, these countries, which had made considerable progress in regulatory reform, have scored a success in efficiency and social welfare growth. Nevertheless, the progress in regulatory reform was sometimes stalled or even reversed when it failed to produce sufficient immediate benefits. Moreover, benefits of regulatory reform are not evenly distributed among producers and consumers.

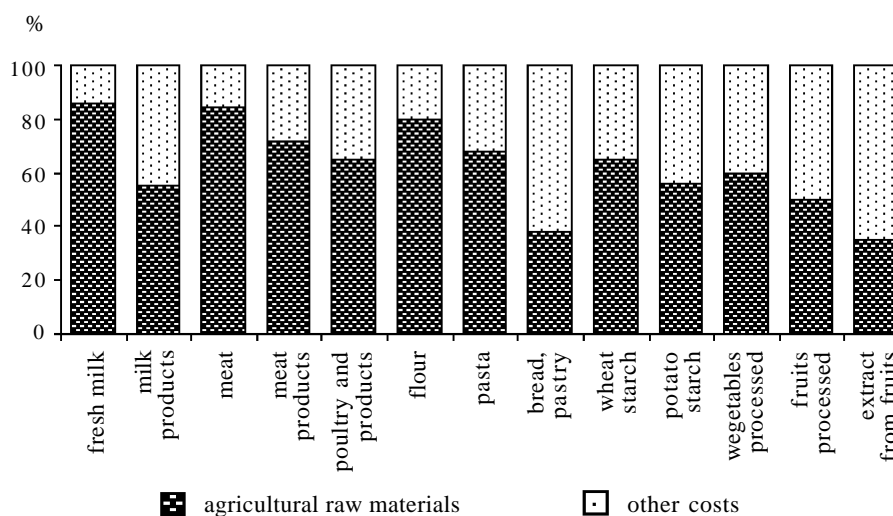


Figure 3. Share of agricultural raw materials within direct costs

Source: Czech Food Industry Chamber

A theoretical framework for market power exhibits can be found in the analysis of (1) monopsony (where a single buyer faces competitive supplier) and (2) bilateral monopoly (where a single buyer faces a single supplier). The most straightforward case of buyer power is that of the single buyer facing competitive sellers – so called “pure monopsony”. The economic construction is analogous to that of pure monopoly (where a single seller is facing competitive buyers). The welfare implications arising from their exercise of market power are explained in a similar method: the situation of competitive supplying branch (agriculture) which faces demand (D) and supply (S) curves is described in Figure 4.

The competitive equilibrium is where D and S intersect, resulting in quantity x_a and price p_a . Let us presuppose the product is used by buyers in later stages of production, so that demand curve represents the average revenue obtained from the raw material which is used to produce the final food product, referred to the derived demand for the input dD which is equal to average value product of the factor.

The impact of a monopsonist’s buying behaviour on market prices is as follows: referring to the upward supply curve (S), as the firm buys more units of the input, there needs to be a higher level of production to accommodate the increased demand, resulting in an increase in the unit cost of production. Therefore, each marginal unit costs more than the average cost, thus we are left with the marginal factor cost curve, denoted by MFC , which lies above the supply curve (S).

If the single buyer is a price taker in the downstream market (e.g. monopsony employer in first-stage food industry) who sells in a competitive market, his profit maximizing output would be determined by the intersection of derived demand curve (dD) and marginal factor cost curve MFC yielding equilibrium price p_m and quantity x_m . The associated welfare loss is represented by the shaded triangle adh .

The monopsonist curbed purchase below the competitive level, so that from a social welfare perspective few resources are utilized as well resulting in allocative welfare losses. The input price declined below the competitive level.

In the situation, where the monopsonist is also monopolist in the downstream market, the welfare loss from the buyer power usage is compounded by the presence of the seller power, with the additional welfare loss.

Competition is the most critical element of a price oriented, market economy. Without competition, firms become complacent, are less likely to innovate, tend to produce less and obtain a higher price for their output. The division of revenues from production has shifted over time in favour of the party with the monopoly or near-monopoly position. The outcome would be a smaller share of the revenue from production going to the farmer, resulting in less compensation to the producer and less to capitalize into land values.

Two major approaches to evaluation and indicators of market power expression have been established in general. Empirical studies typically use some measures of market concentrations or profit margin as indicators of market power. Similarly, import penetration rate is sometimes used as a proxy for the degree of foreign competition. These measures are relatively easy to calculate, even though admittedly they are not accurate measures of competition. This inaccuracy is related with the fact that those measures do not capture dynamic aspects of competition such as the role of future entrants or implications of selected effects.

One of the drivers in the trend toward greater concentration in almost all sectors of the world economy is the increasing concentration in markets into which products are being sold. Thus, the rising tide of concentration in food retailing leads to consolidation by suppliers to match the buying power of the retailers. The driving force is an increase in negotiating power, not necessarily an increase in efficiency.

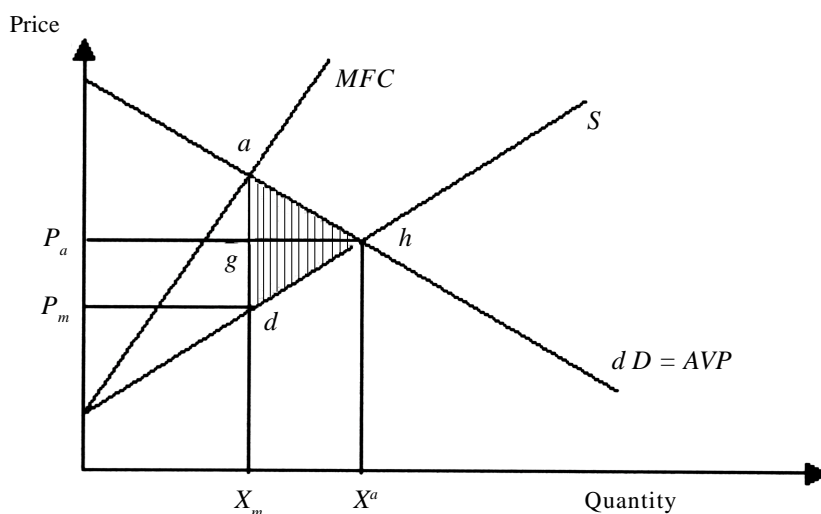


Figure 4. Monopsony welfare losses

The moves made by the major players, both input suppliers and output processors and traders, often lead to conclude that the objective is to vertically integrate the sector. Such an objective could be pursued for several reasons. For example Harl (2001) indicates five fundamental reasons:

- (1) to gain and maintain greater control over patented products or products subject to intellectual property protection,
- (2) to apply economic pressure on producers to relinquish functions in favor of the integrator (such as risk management) or to merely provide an opportunity for risk to be off-loaded onto the integrator,
- (3) to reduce costs (particularly acquisition costs for raw materials) of the integrating firm,
- (4) to achieve greater market share on an assured basis,
- (5) to deliver with greater precision what consumers want.

Although vertically integrating food chain may produce economies including reduced costs for acquisition of raw materials, vertical integration by powerful integrators could have negative consequences. Among those negative outcomes, there is the obstruction of open, transparent, competitive markets and replacement of those markets with negotiated prices. With a huge difference in bargaining power, as between the parties, the outcome is predictable. The party with the weaker market power tends to be the loser. Unless agricultural producers act collectively, producers universally tend to be the weaker party.

Let us to ask a question: are economies from vertical integration likely to be passed on to consumers? With a high level of concentration, that is doubtful. Actually, several possible outcomes could be occurring in the merger/vertical integration movement.

If the structural transformation now being observed reflects efficiencies, lower costs could be passed to consumers if competition is present and the competitive system is functioning well.

If the event gains from efficiency are not passed to consumers, but are passed to shareholders or used to pad costs within the firm, the trend is unacceptable even though some would argue that system-wide gains in efficiency should be permitted even in the face of anti-competitive conditions.

The demand side influence and the buyer market power exercise in the Czech agrarian market were proved in practice in 1990 after elimination of the "red" tax on the turnover of agricultural and food products. Consumer prices of food and beverages rose by one fourth and the consumer demand dropped sharply at once. The food industry as well as trade responded immediately and implemented their monopsonist advantage in relationships with the farmers.

Both the drop of demand and the farm product price freezing during the price liberalization in the Czech economy brought the exceptional profit for processing industry enterprises in 1991. However, the food industry did not utilize the short term profit advantage for their

useful restructuring and did not pick up their interrelationships with the farm level.

In spite of a very good position of the food industry among the overall processing industry in the Czech Republic, its further development is determined mainly by the fact, that with the limited purchasing power, there is little chance of growth in domestic consumption. Also in the international market, only some food products are successful, mostly of world brands, which applies also to the EU territory. Both of them have become the crucial for the development of modern, demand oriented and competitive agriculture.

CONCLUSION

The economic importance of the processing and finalization (i.e. food industry and food distribution) within the agri-food chain has increased over time. That has been confirmed by the analytical economic studies in the whole developed world. But the rising proportion of consumer spending on food manufacturing and distribution reflects not only the contribution of those links of agri-food chain before food reaches the consumer and associated cost, but also their market power. The influence of market power has become critical. In the context of growing market (buyer) power of retailers, the ability of these firms to obtain more favourable terms from suppliers than either those available to other buyers or that would be otherwise expected under normal competitive conditions rises.

The future trends in agricultural output will not depend on the prospects for commodity prices only, but also on improvements in productivity and competitiveness in the whole agri-food chain. With the enormous changes already accomplished and continuing reforms, there are linked gains in productivity. There are still significant challenges to be met in improving the efficiency and transparency of factor and product markets for agricultural products. While substantial progress has been made in developing market infrastructure and improving the price information system, more needs to be done in order to be competitive in the international markets. Greater emphasis needs to be placed on developing higher value added products and export markets. Enhanced efforts need to be made to improve quality from all its points of view. The overall objective of the structural, trade and domestic policy reforms is to develop an efficient, productive and competitive agri-food sector that will contribute to economic growth and welfare of the society.

REFERENCES

- Ahn S. (2002): Competition, innovation and productivity growth: A Review of Theory and Evidence. OECD, ED Working Papers No 317.

- Aghion P. et al. (2001): Empirical estimates of the relationship between product market competition and innovation, mimeograph.
- Bečvářová V. (2001): Finalizace výrobků a konkurenceschopnost podniků. In: *Faktory podnikové úspěšnosti*, FEM SPU Nitra, Liptovský Ján.
- Bečvářová V. (2002): Food Industry impact on competitiveness of agriculture. *An Enterprise Odyssey: Economics and Business in the New Millennium*. International Conference paper, Zagreb.
- Cramer G.L., Jensen C.W. (1994): *Agricultural Economics and Agribusiness*. University of Arkansas, Montana State University.
- Dobson Consulting (1999): *Buyer Power and its Impact on Competition in the Food Retail Distribution Sector of the European Union*. Nottingham.
- Gardner B.L. (1975): The Farm-Retail Price Spread in a Competitive Food Industry. *American Journal of Agricultural Economics*, 65 (2).
- Gardner B.L. (1992): Changing Economic Perspectives on the Farm Problem. *Journal of Economic Literature*, 30.
- Gonenc M., Maher R., Nicoletti (2001): The Implementation and the Effects of Regulatory Reform: Past Experience and Current Issues. *OECD Economic Studies*, No. 32.
- Harl N.E. (2001): *The Structural Transformation of Agriculture*. The Changing Structure of Agriculture, Iowa State University.
- Harvey D. (1997): *Extensions and Political analysis of the CAP*. The Common Agricultural Policy, CAB International.
- Honma M., Hayami Y. (1986): The Determinants of Agricultural Protection Levels: an Econometric Analysis. In: Anderson K., Hayami Y: *The Political Economy of Agricultural Protection*. London, Allen and Unwin.
- Josling T. (1969): A Formal Approach to Agricultural Policy. *Journal of Agricultural Economics*, 20 (2).
- Munk K.J. (1994): *Explaining Agricultural Policy*. European Economy, Reports and Studies, No 4.
- Nickel S.J. (1996): Competition and corporate performance. *Journal of Political Economy*, 104 (4).
- OECD (2001): *The Width of the Intra-European Economic Border*. ED OECD.
- Rausser G.C. (1982): Political Economic Markets in Food and Agriculture. *American Journal of Agricultural Economics*, 64 (5).
- Rausser G.C., Foster E.W. (1990): Political Preference Functions and Public Policy Reform. *American Journal of Agricultural Economics*, 72 (6).
- Swinen J., Van der Zee F.A. (1994): The new political economy of agricultural policies a survey. *European Review of Agricultural Economics*, 20 (3).
- Swinbank A. (1990): Implication of 1992 for EEC Farm and Food Policies. *Food Policy*, 15 (2).

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