THE NECESSITY OF STRATEGIC THINKING IN HUNGARIAN AGRIBUSINESS

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ABSTRACT

Based on analysis of a time series of **R**evealed **C**omparative **A**dvantage (**RCA**) indicator and **R**elative **T**rade **A**dvantage Index the performance of Hungarian agriculture and food industry has declined rapidly during the last fifteen years. This fact highlights the importance of searching new paradigms in development. In short term the increasing of production –quantity does not seem to be a rational way. The only alternative is the product –differentiation strategy. Under conditions of increasing competition in foreign markets the importance of domestic markets gains in importance. The domestic market is a dynamic one, too: the producers should be better focussed of new demands of specific consumer segments (e.g. elder generations, ethnic minorities etc…). On the long term the future of Hungarian agri-food chain is considerably determined by extern factors: in case of increasing energy prices and global warming the importance of production capacities will be increasing rapidly.

INTRODUCTION

In era of **globalisation** the Hungarian agriculture and food industry is facing with new challenges. The most important of this is the increasing role of world trade of agricultural and food industrial products (Bonanno, 1994). The partial liberalisation of world markets

as a consequence of WTO negotiations as well as the relatively cheep prices of international transportation offer a favourable condition for increasing of foreign trade of goods and services. These processes drastically re-shape the geography of trade of agri-food products.

Traditionally, the world market of agri-food products has been characterised by considerable export of raw agricultural goods of developing and developed states and an intense trade of food products between the developed economies (Gunst, 1996). In last decade of 20th century this picture has profoundly changed: there is an increasing share in food export of states, which had been importers, or only self-sufficient some decades ago. A striking example of this way of development is Brasilia. Up to the seventies of last century, this state-giant followed an economic policy, focussing on industrialisation. Later it became obvious, that the agricultural and food industrial development offers much more possibility of rapid modernisation. In this way-often at the cost of sever degradation of natural environments – the South –American state became a leading exporter of numerous, mainly, but not exclusively primary processed food products (Tim, 1997).

As a consequence of the globalisation the tradition and sophisticated production **technologies** seem not to be enough to maintain the former positions of world market: the French wine industry has lost a considerable market share in Europe, facing the strong competition, innovative and aggressive marketing of "new world" producers (Hajdu, 2004).. Under these conditions, we are facing a newer before seen competition on food markets

The **aim** of present study is to determine the outlines of a new strategy for Hungarian agricultural and food industrial sector.

The paper is divided into **three** main parts. In **first** part some market processes are analysed from point of view of Hungarian food chain. In **second** one the main directions are outlined for sustainable growth, both in economic as well as in economic sense. The **third** part highlights some ways and means of application of strategic thinking for strategic development of agri-food sphere.

MATERIALS AND METHODS

If we try to quantify the **comparative advantages** and competitiveness, than there is a wide choice of possible and applicable indicators. The most frequently used is the Balassa's **R**evealed **C**omparative **A**dvantage (**RCA**) index, developed by Hungarian-born economist, Béla Balassa (1965).

This index is based on observed trade patterns: it measures a country's exports of a community relative to its total exports and to the corresponding export performance of a set of countries.

$$RCA_{ijt} = \left[\frac{\frac{X_{ijt}}{X_{iwt}}}{\frac{\sum X_{ajt}}{\sum X_{awt}}} \right]$$

RCA_{ijt} Revealed comparative advantage index value for product **i**, in country **j**, in year **t**
X_{ijt} Export of product **i,** in country **j,** in year **t**
X_{iwt} Total world (or reference state's) export of product **i**, in year **t**
X_{ajt} Total exports in country **j**, in year **t**
X_{awt} Total world (or reference state's) export in year **t**

This measure reflects the success in exporting of countries relative to a world-wide norm, or another country-groups. The RCA index takes values between 0 and + ∞. A value of the RCA index greater than 1 denotes product or product category, in which country is relatively more specialized. On the contrary, a value less than 1 characterizes that the country j is accepted not specialized in product 1. The name of the indicator is some misleading, because, export can be deformed by numerous factors (e.g. subsidies and other incentives provided, for instance the exchange rate misalignment). These incentives can explain competitiveness, but not comparative advantage. That's why the indicator measures competitiveness rather than comparative advantage.

The **R**elative **T**rade **A**dvantage Index (**RTA**) has been developed by Scott and Vollrath (1992). This index shows the net trade advantage or disadvantage. This index is determined by the difference between the **R**elative E**x**port **A**dvantage (**RXA**) and the **R**elative I**m**port **P**enetration Index (**RMP**). In this way the RTA index is a rather complex measure of competitiveness.

$$RTA_{ij} = RTA_{ij} - RMP_{ij}$$

The **R**elative **E**xport **A**dvantage is obtained by calculating the revealed comparative advantage of country groups over a large number of branches. The index is defined as the ratio of a country's export share of a certain product in teh world market to the same country's share in world export of all other communities. While estimating this indicator, the world „total" must be always taken as the sum of all other countries, expect the country studied, to avoid the double counting.

$$RXA_j = \frac{\left[\frac{X_{ij}}{\sum_{l,\, l \neq j} X_{il}} \right]}{\left[\frac{\sum_{k,\, k \neq i} X_{ij}}{\sum_{k,\, k \neq i} \sum_{l \neq j} X_{kl}} \right]}$$

Values greater than 1 suggest that the country has a competitive advantage for the examined product category, whereas values less than 1 point to a competitive disadvantage.

The **R**elative I**m**port **P**enetration Index (**RMP**) is similar to RXA, the only difference is that it considers imports (M_{ij}). Based on the logic of calculation of the indicator, the value of 1 suggest competitive disadvantage, values less than 1 indicate competitive advantages. the index is calculated as follows:

$$RMP_{ij} = \frac{\left[\frac{M_{ij}}{\sum_{l,\, l \neq j} M_{it}}\right]}{\left[\frac{\sum_{k,\, k \neq i} M_{kj}}{\sum_{k,\, k \neq i} \sum_{l l \neq j} M_{kl}}\right]}$$

RESULTS

The Hungarian Food– and Agricultural Products on markets

The Hungarian agricultural and food industrial production has been traditionally **export–oriented**. A considerable quantity and quality of food industrial products were sold on foreign (another member-states of the Ausrto-Habsburg Monarchy, German, Polish, Italian and Russian) markets. Is should be seen however, that the export-oriented development had been based mainly of mass-production. This factor has made the Hungarian agricultural export an extremely vulnerable one: it became obvious at the end of 19th century that the Hungarian agricultural products could not compete with cheaper American ones (Gunst, 1999). After the Treaty of Trianon, the major agricultural and food industrial production capacities remained in Hungary, but a considerable part of markets remained outside the new borders. The socialist system has covered the deep-rooted structural problems of this way of development, but after the collapse of the Council of Mutual Economic Assistance (Comecon) the contradictions between the Hungarian agricultural and food industrial production capacities and the demand of world market became even more obvious (Szabó and Kiss, 2002).

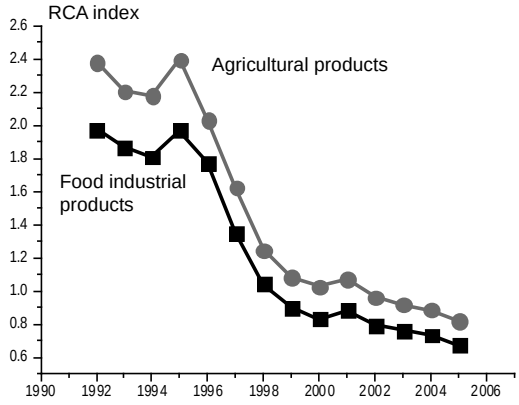
The performance of Hungarian **agri-food chain** can be evaluated on base of its competitiveness. The theory of comparative advantages, export specialisation and competitiveness are the basic concepts of economics, but their practical application is in focus of public debates. In opinion of some authors there is not a necessity to analyse the driving forces of export –specialisation, because the countries, having an abundance of resources, try to maximally utilise it. As Haberler (1933) remarked: „no sophisticated theory is necessary to explain why Kuwait exports oil, Bolivia tin, Brazil coffee and Portugal wine" (cit. by Golding, 1990). Following this logic, it would be natural, if the Hungar-

ian economy had specialised to production of agricultural and food industrial products, because the per-capita arable land endowment is one of the highest in Hungary compared with another European states. The relatively cheap living labour is another factor, which could be served as an argument for export –oriented development of agri-food sector.

In the framework of our analysis we have compared the performance of Hungarian agriculture and food industry to the corresponding values of the European Union. To achieve the consistency, we have applied the data, concerning the **EU-25**, without the indicators of two new member states, Romania and Bulgaria. Source of data has been the official trade statistics of World Trade Organisation. The first year of investigation has been 1992, because in the former years the statistical data were not real, as a consequence of distorted system of the COMECON clearing. As a consequence of the considerable intertie of the international trade statistical systems the latest available data has been reflected the status in 2005, but at least the international consistency could be achieved. Two different analyses have been carried out: one for agricultural and food industrial products, and one for food industrial products only.

Analysing the results it is obvious, that the **RCA** index for food industrial products was always higher than for agri-food products (figure 1). This is a rather positive fact, because the level of comparative advantages in case of processed products, having higher value added content is a bit higher than if we take into consideration the export of agricultural products. In early nineties the share of ratio of Hungarian agricultural and food export in EU export has been more than two times higher than the Hungarian share in total EU export. This fact highlights a considerable comparative advantage. Between 1995 and 2005 this ratio has fallen to 0.6, showing a comparative disadvantage.

Fig 1: The Revealed Comparative Advantage index for Hungarian products



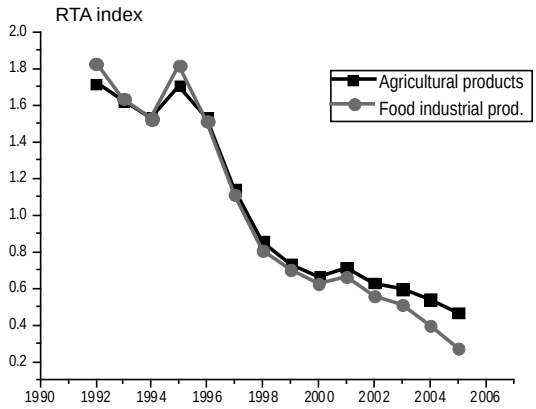
Source: Authors' calculaton, based on WTO electornic database

This can be considered as a rather negative tendency, because highlights a considerable contradiction: on one hand Hungary has comparative advantages in agricultural and

food industrial production, on another hand the share of Hungarian agricultural and food industrial export compared to EU export is much more lower, than the share of Hungarian total export compared to EU total export.

Analysing the **R**elative **T**rade **A**dvantage Index we see a similar tendency, but this indicator has lost its value extremely rapidly (**Fig. 2**). For food industrial products its value has decreased to one-night part during thirteen years. This, more rapid decreasing can be explained by the method of calculation of index: in this case the import is taken into consideration, too. The Hungarian agri-food import increased in a dynamic way. This can be explained by decreasing of agricultural production and increasing penetration of multinational retail chains, trying to supply their members for concentrated supply centres.

Fig. 2: The Relative Trade Advantage index of Hungarian products



Source: Authors' calculaton, based on WTO electornic database

Towards new paradigms

The central **paradigm of development** of Hungarian agriculture and food industry from last decades of the 19th century has been the quantitative development, but there is a constant oversupply on international market of mass–products. In some cases-e.g. in 2006-2007, there are some increasing in prices, but if we take into consideration the inflation of international currencies, we have to see that these temporary price-increases do not cover the even the inflation. According to the OECD-FAO medium–term estimation, the prices of agricultural commodities will gradually come down from peak, achieved in last years, because of the transitory nature of some of the factors that are behind the recent hikes, but the long-term decline of prices in real terms will be reduced (OECD-FAO, 2008). Under these conditions it is obvious, that the European producer's products with low value added content are in an *ab ovo* loosing position, because they can't be competitive with

extremely cheep import products. Of course it is a question of further consideration, that this rush export development is often based on negligence of ecologic and ethic principles (e.g. the deforestation in Brazil, or the poor level of animal welfare in South–Eastern Asian countries).

In **short run**, the only possibility of export market success is the increasing of value-added content of products, following the strategy of product differentiation. This thesis highlight the importance of harmonic development of agricultural and food industrial capacities and the infrastructure. In globalised markets the key actors are not only the products, but their supply chains, too. This fact highlights the importance of product and process innovation, satisfying the ever increasing demands. During the last decades it became obvious, that the use of agro-ecological potential has not been enough for sustainable success. E.g. the Hungarian wheat on Spanish market has not been competitive with Brazilian one even with considerable subsidy from EU-budget, because the logistical infrastructure of transport was extremely expensive.

The saturation on **export markets** enhances the importance of domestic markets, which are the "battlefields" of global competition too. In era of gaining importance of regional integrations (e.g. European Union) the division of markets to export and domestic seems to be obsolete, because the national frontiers play a deceasing role in trade, but some differences (e.g. in tastes and preferences, purchasing power, taxation, trade regulations etc.) make it necessary this distinction.. If the food industry is slow to react to pressure of competition, there is a real danger of considerable market losses. On domestic market the tradition and the presupposed consumer loyalty to domestic products do not seem to be enough: for example after the EU accession, between 2004 and 2008 the Hungarian food industry has lost one fifth of its domestic market share.

The **domestic market o**f food products practically in all developed states can be characterised by relatively slow and lesser spectacular, but constant processes. The most important of these are as follows:

- **Aging of population.** The increasing average age of population is a rather general tendency all over Europe. This can be explained on one hand by the rising of life-expectancy and by decreasing number of birth. This tendency highlights the importance of development of specific products, taking into consideration the specific physiologic needs of elder generations.
- The **health-condition** of the population shows considerable differences not only between various countries, but between the different population segments, too.
- In postmodern societies can be characterised by the drastic change of concept and functions of **family** (Spéder, 1999). The most important changes in size and structure of families are as follows: (1) increasing share of two-earner family models, (2) emergence in number of single person households, (3) growing of importance of common-law relationships, often without long-term perspective, (4) high level of divorces, (5) increasing number of children, born out of a marriage relations. These changes exercise a profound effect on demand on food: the smaller families demand smaller douses, and more convenience food. At the same time, the

culture-transmitter function of family is decreasing rapidly. The new generations often do not learn the kitchen practice and cooking at paternal home, that's why there is emerging role for educational of food industry. It is a commonplace to emphasize the increasing role of schools in nutrition-related education, but we have to see, that this in itself can't be regarded as a complete solution.

– The value of the **free time** is constantly increasing. The development of motorisation offers a much higher level of mobility. The different weekend programs are integral parts of family life. A considerable number of these programs and activities are joining to gastronomic events. There are soon some good experiences with integrating the tourism and food industrial development. This is a good example of the possibilities of symbiosis of tourism, food industrial and rural development. E.g. some years ago Etyek has been a small, sleepy village about thirty km from Budapest, with considerable, un-utilised traditions of wine making. At the initiative of two innovative men (it is highly interesting, that they were outsiders: one has arrived from world of media, the other from abroad, and from distillery industry) the local wine–makers begun to organise wine-related touristic attractions, and created a well sounding slogan: "Etyek: The capital's vineyard". These touristic events exercised a created a considerable promotion effect to the wine region. The prices of vineyards and caves have increased rapidly; there was a rash modernisation of the former, rather obsolete wine making technology. In village, Kapolcs, situated in a mountainous region of Hungary, where the only income generating possibility of the local population was the agricultural production and the clandestine barter with solders of former Soviet Union, who used this field as a tank-shooting place, in close cooperation with some local villages a regular cultural festival had been organised in last two decades under the title: "Valley of arts". Number of visitors of these events has been as high as some hundred thousand in last years. Of course, this offers a unique possibility to sell the food products of the region, without the necessity of dividing the margin with the wholesale and local traders. At the same time, there are numerous examples, which show, that local development was unable to use the possibilities, offered by identifying tourism. From nineties of the last century there begun a real boom in construction of baths based on unique thermal water treasure of Hungary. Guests, arriving in these, often ultra-modern facilities often do not have any possibility to taste the local foods, however this would be highly important not only for increasing of local revenue, but also for image building of regional products.
– The second half of twentieth century means the increasing importance of numerous demand for **specific products**, too. E.g. a considerable share of population tries to maintain its physical condition by sport. It is hardly arguable, that the hobby-sportsmen/women need specific nutrition, state of the art products to increase the mass of muscles or to keep up the salt-balance.
– There are **two parallel** processes in food consumption: on one hand the consumers try to minimise the time for food consumption, there is a general, continuously

tendency of away from home eating, and, at the some time some parts of food preparation maintained their social role (e.g. barbecue parties). Both of these offer new markets for food producers.

– The **new millennium** is the great migrations, too. These are not so obvious, than the migration period more than one thousand years ago, but have profound consequences. E.g. in our days 40% of London's total population is from an ethnic minority, the Turkish population achieves nearly two million in Germany. However the food market has newer been in majority of European states a homogenous one (e.g. specific demands of Jewish communities), the movements of latest decades highlight the emerging importance of minority groups. Parallel with emergence of new ethnic groups (e.g. emergence of Chinese population in Central –Europe), as a consequence of differences in birth rate, some groups, living in the territory of a given country, gain and increasing importance. A good example of this is the Hungarian roma (gipsy) population. This ethnic minority, originated from India has lived together with Hungarians for more than six centuries, a considerable part of them keeping their traditional lifestyle and culture. As a consequence of traditionally high birth-rate soon each fifths of newborn children is estimated as roma, that's why according to different estimations after two decades 20-30% of population of Hungary will consist of members of this minority. This market share seems to be more than enough to target the product innovation to this segment. These processes increase the importance of adaptation to specific needs of minorities. E.g. the production of Halal products (Food that is permissible by Islamic low-this is a question of great importance, because according to the sources of Klausen, 2005 there are approximately 15 million Muslims in Europe) or Kosher products offer new market possibilities for producers all over Europe. Even the largest food producers have a rather gloomy analysis of specific demand of such, lesser known minorities, such as rapidly growing minority of Russians (noveau rich persons, their escort, and the guest workers in Western-Europe).

The **large-scale** agricultural production, especially the arable land agriculture does not mean any possibility to answer the problems of rural development, because- as a consequence of high level mechanisation of agricultural production- these activities do not contribute to the creation of a considerable number of workplaces. In lack of intensive agriculture, and local food production a circullus vicious begins: decreasing value added content, generated in the region, worsening level of material and human infrastructure (e.g. closing of schools in lack of children, losing of young parents in lack of schools), decreasing capital involvement possibilities, increasing, persistent unemployment, deviances, disaggregating families. That is why the development of local food processing is not only an economic problem, but a strategic question from point of view of general equilibrium of society, too.

The promotion of **regional food processing** got new impetus in Central Europe in last two decades. The times has proven, that in this field one can't expect rapid success, to

establish a catalogue the local and traditional products is only a necessary, but not a satisfactory precondition of success. Without a sound and stable technology, answering to the food hygienic demands and quality control, as well as a conservative economic calculation and marketing plan the failure of these initiatives is encoded in these projects. We had to see in numerous cases, that economic calculation, based on rather optimistic prognoses of producers is not enough. The worst-case scenarios, risk-estimates should be integral part of such investments, too. Sophisticated, user-friendly software offer an excellent, fast and easy possibility to analyse the effect of different socio-economic variables on investment. In case of small-scale food producers a specific problem is the high seasonality of production, consumption or both. This rises far-reaching **technological** (food safety during storage and distribution) and **economic** questions, because the economic feasibility of these project depends in considerable level on capability of stock-financing. The micro-or small entrepreneurs have an extremely unfavourable position in bargaining with large -scale food trade firms. Beside the real danger of abuse of economic superiority by these enterprises, they are unable to handle the limited quantity of products, often having a highly seasonal character in supply. That's why the only possibility for these food processors seems the setting up of their own marketing channel. It is a further, specific question, how can be achieved the demand of product traceability and food safety in these enterprises. The food safety legislation faces a difficult problem: on one hand it is evident, that the regulations for large-scale produces are not applicable without modification to micro-producers, on the other hand, we must not return to the practice, which has been characteristic one hundred years ago, e.g. selling of meats on open-air markets, even if there is always some political pressure to be more tolerant to this activities, because the sellers, by their "affordable" prices contribute to the satisfaction of food demand of lower classes of population.

In case of some specific product categories, a favourable possibility could be the wider use of **internet**, as a vehicle of information between the consumers or the community of consumers, e.g. dwellers of a large city-house and the producers. This question rises the importance of cooperation of producers, because the successful physical distribution even in era of computers demand a sophisticated logistical infrastructure, which can't be achieved without the joint efforts of food producers of a region.

Importance of strategic planning in development of Hungarian agriculture and food industry

During the last decades there have been numerous attempts to **prepare a strategy** for Hungarian agriculture and food industry. In practice, there were not real strategies, rather concepts for next years. This is a quit natural phenomenon, because the decision-makers at different levels are concerned with solution of short-term problems. The most important time-horizons are summarised in Table 1. It is obvious, that there is an inherent contradiction between the horizons of political and business managers as well as the life-cycle of means of production. This could be considered as a general phenomenon, but its

importance is especially high in agribusiness, where the material background of living labour is above-average and increases constantly, and-at the same time- the biologic bases of production need a longer time of horizon. E.g. the minimal economic life-span for a vine-plantation is at least fifteen years.

Table 1. Time horizons of different economic entities and activities

Name of economic entities and activities	Horizon (years)
Enterprise-level operative financial management	0.5
Government programs	2-3
National Agricultural and Rural Development Plan	7
European Union	5-8
Research and development projects	3
Life –cycle of production capacities in agriculture and food industry	5-20

Source: authors' estimations

Numerous bitter experiences with using of EU pre-accession resources highlight the importance of strategic thinking too. E.g. one of the most important Hungarian meat factory got considerable sum of resources for technological modernisation around the millennium. In 2005-2008 it became obvious, that there is no room for further development of the meat processing factory, the optimal solution would be to re-build the factory in an another place.

In preparation of strategic plan for Hungarian agriculture and food industry some drastic, potential changes of socio-economic environment should be considered:

– effects of global warming on agricultural production quality and structure of the world, European Union and Hungary;
– consequences of increasing energy –demand on economic feasibility of bio-energy plans.

With a considerable simplification these two exogenous variables will basically influence the long-term prospects of European-and within this Hungarian agriculture and food production. The basic theoretical scenarios-with considerable simplification–are shown in Figure 3.

Fig. 3: Possible scenarios of Hungarian agri-food sector, as a function of effects of climate change and fuel-supply

		Effects of climate change	
		Negligible	Considerable
Fuel-supply	The supply is manageable	Main emphasis on quality of production, ecology and rural development	Increasing importance of production quantity and distant markets
	Considerable imbalance between demand and supply	Increasing importance of bio energy-production.	Maintenance of food-processing capacities

Source: Author's model

Analysing the **Figure 3** it is obvious, that the continuous development of agri-food sector can be considered as a relevant alternative (if and only) if neither the climate change, nor the energy crisis does not exercise a considerable effect on global food supply chain.

Interactions between food production, climate and patterns of land use are extremely complex. Major challenges in agricultural production structure are foreseen in the next couple fo decades in response to shifts in climate, greenhouse gas management initiatives, population growth (Brouwer et al., 2006). Experts' opinions differ on phenomena and scale of effects of global warming. According to the latest estimations (Cline, 2007) in second half of 21st century the agricultural production in developing countries may fall between 10-25 percent, and if a global warming progress unabated, India's agricultural capacity could fall as much as 40 percent. In opinion of Hungarian researchers the climate change will be extremely important for Hungarian agriculture. This rises the question of development of long-term measures for preparation to the new situation. If the food shortage phenomenon (which was seen soon in 2006-2007) continues, -and especially when the energy-prices remain relatively stable-the better use of agricultural production potential cold be an important driving force of the development of national economy, because in this case the distant countries (e.g. China and another states of Far-East will be within the radius of economic transportation).

In case of realisation of low effect of **climate change**-considerable energy shortage scenario the bioenergy–based production gains in importance. Under the current economic conditions, the biofuel-production is not competitive with fossil fuels, and in case of world trade liberalisation the Brazilian bioethanol could be much cheaper at European gas-stations than the locally produced one. In case of increasing transport prices the competitiveness of bioethanol will be much higher, too.

If the effects of climate-change and energy–shortage will occur at the same time, than the value of Hungarian agricultural and food industrial production potential will gain in importance.

The high level of unreliability of long-term scenarios and the extreme complex role of agri-food sphere in rural development, sustainability, workplace creation; its accelerative and multiplicative effect in national economy make it necessary a strategic thinking and planning.

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