

# **ANALYSIS OF DISTRIBUTION LOGISTICS IN FOOD ECONOMY**

PHD THESIS ABSTRACT

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## **1. Research objectives and hypotheses**

### *1.1. Significance of the study*

Food economy plays a prominent role in the income-generating processes of the Hungarian economy, in the country's active participation in international trade, in food supply and in ensuring high employment levels. Hungary's geographical location and climate is favourable for producing high-quality goods, which enjoy a good reputation both locally and abroad, thanks to highly-qualified specialists employed in the food economy. However, the Hungarian food economy is confronting several problems that hinder profitable sales. With the opening markets, foreign goods which are cheaper and of lower quality than local products, or cheaper but of a similar quality, are competing more successfully for customers. There may be a number of reasons for this phenomenon outside my field, such as the fragmentation of producers, or the extent, allocation and profitability of development resources. Within my professional fields – namely freight forwarding and logistics – I am also trying to ascertain the causes whose elimination would foster the development of sales practices of the Hungarian food economy.

Initially, I intended to focus on international sales in my research. Having examined the available literature, I realised what we have already been experiencing on a daily basis: not only does the Hungarian food economy have problems in selling into foreign markets, but its products are losing ground in the domestic market as well. The competitiveness of Hungary's agriculture depends on the domestic market. Only a minor proportion of our food products are exported: for instance 21% of grain (through producers, integrators, mills, feed manufacturers, industrial users and intervention) and 15% of fresh vegetables and fruits (through producers, wholesalers and producer organisations combined). According to the article by VARGA et al. (2007), 7.7% of dairy products (raw milk from producers and milk processors), 30.1% of the poultry sector (only slaughterhouses; however imported poultry is included), 21% of grain products and 13.5% of fresh vegetables and fruits is exported. What these numbers show is that domestic products are sold primarily in the domestic market, where they have to compete with imported goods. This is supported by import sales figures: 18.7% of fresh vegetables and fruits (though this includes products that cannot be produced domestically), 1.5% of raw milk, but 25% of dairy products in the product range of retail chains, and a substantial proportion in the input of milk processors, and 6.8% of poultry from domestic slaughterhouses is imported (VARGA et al. 2007). Hungary's accession to the EU created an even stiffer domestic competition for domestic producers. Beside the varying subsidy levels, this is due to the fact that the agricultural products of developed countries are of reliable quality and they reach domestic consumers and end-users at a lower cost thanks to a more advanced sales strategy and logistics and to institutional and non-financial state assistance to producers.

Consequently, Hungarian producers have to face competition from their foreign rivals as regards prices, consistent quality or logistics services to accompany products. Therefore, advanced trade logistics services of food products are vital not just in export sales but in the domestic market too. This realization encouraged me not only to look into the problems of the export freight forwarding of food products, but also to find ways of improving domestic sales conditions.

Logistics plays an increasingly important role in building a market economy and in improving economy and profitability. Hungarian professionals not only learnt up-to-date logistics methods fast – known only from foreign literature – through multinational production and trading companies settling in Hungary, but they further developed them. These methods helped us participate to a greater extent in international production and sales processes with several of our products, many of which compete successfully with foreign products both at home and abroad. The question arises: how widespread are up-to-date logistics methods in food economy, and especially in the distribution processes for food products.

There are several specialists dealing with manufacturing logistics at food economy companies, however, distribution logistics is one of the most underdeveloped areas of Hungarian agriculture and food economy, despite the fact that logistics costs in the agricultural sector may account for 20-40% of production and sales costs (VARGA et al. 2007). In order to enhance the competitiveness of Hungarian agricultural and food economy companies, the main task would be to improve distribution logistics and to improve technical and infrastructure conditions. The production, storage and carriage operations of the Hungarian food economy entail higher costs than that of their foreign competitors. It would be vital for distribution logistics not to follow procurement and manufacturing logistics, but instead planning were simultaneous. Costs involved in the delivery of goods always influence retail prices: the producer may sell the product on-site but at a lower price, or they deliver their products themselves to users, pay for related expenses, and they can ask for a higher price.

- economically viable vehicles in good operating condition, which comply with environmental requirements and meet the specific needs of the agricultural product to be delivered
- continuous and close contact with the forwarder (EDI – electronic data interchange or the application of other up-to-date modes of communication)
- application of up-to-date research findings in the fields of transportation, freight forwarding and logistics to organize the movement of agricultural products; primarily a change of approach would be necessary along with the purchase of fixed and current assets

The improvement of distribution logistics has two main objectives:

a) Cost reduction

The selling price of products is regulated partly by demand and partly by stiff competition in the market, which is advantageous for low-priced products. Thus, cutting costs is the only way to increase profits. At the same time, reducing the prime cost is not always feasible, as for example in Hungary the price increase of non-agricultural inputs (materials, energy, etc) used in agriculture constantly exceeds that of agricultural products. In food economy, in terms of the logistics costs of products, distribution costs are higher than procurement and manufacturing logistics costs. This is due to the fact that producers use self-produced stocks (such as fodder) in great quantities, and that the amount of materials generated during production exceeds the input material amount. As a consequence, one way of reducing the costs of products to be launched onto the market would be to decrease distribution logistics costs.

b) Quality improvement of product distribution

Beside cost reduction, the market competitiveness of products is also influenced by the service level. Among the shortcomings of distribution logistics are quality management, packaging, poor product-related service and poor complaint management. It is advisable to examine the role of the above-mentioned areas in the logistics chain, and how their absence hampers the creation of an efficient chain. The development of a successful sales strategy is based on customer needs. An indispensable element of the whole manufacturing – and distribution – logistics system is its last phase: when the customer meets the product. The modernization of distribution logistics is inevitable in launching products onto the market, and it could ensure that these products are processed and not sold as raw materials. In the EU's support policy, the development of product-related services are gaining priority over that of products. In order to increase sales opportunities of processed products, advanced logistics methods and tools are vital. Value-added logistics operations help raise the level of customer service. The shortcomings of distribution logistics hit small and medium producers particularly hard as machinery services, material procurement and vocational training require substantial capital.

The cooperation of the food economy buyer and his logistics service provider can be established in different ways. In the services market, the producer or marketer is the customer, and the service provider is the seller, therefore, the contractual relationships between them develop similarly to the seller-buyer relationships in the product market. The two main types of relations are the adversarial relationship and the partnering relationship. When hiring a service provider for a variety of services – depending on the type of service – with providers of routine services a company builds an adversarial

relationship, while with providers of unique services they build a partnering relationship. A comprehensive analysis is necessary to identify which type of relationship should be recommended to food economy buyers.

A fundamental characteristic of collaborative, partnering relationships is the length of time partnering. In short-term relationships, the seller or logistics provider does not dare to make costly investments on behalf of the buyer, does not understand the significance of joint effort, and does not think in terms of what might be favourable for the buyer. This contractual form encourages a seller or logistics provider with strong financial muscles to improve continually, which requires considerable capital. In Hungary it is uncommon for sellers and logistics providers to have sufficient capital for such major developments with high uncertainty. Therefore, for a successful future collaboration, a partnering relationship may be advisable for economic actors in Hungary. However, it is unsure whether long-term collaboration between existing food economy buyers and logistics providers bears the characteristics of partnering relationships.

In my thesis, I would like to investigate how logistics providers could help improve distribution activities in the Hungarian food economy. Could they play a bigger role in marketing Hungarian products more effectively in the domestic and international market through their high-quality distribution logistics? Without going into further details of the problems the food industry faces, I focused on analysing distribution logistics: how it would help improve the sales of domestic products and keep or regain their position in the domestic and international market.

## *1.2. Research objectives*

Based on this overview of logistics in food economy, my primary aim was to investigate how the distribution logistics of Hungarian agricultural and food industry companies could be improved by using the logistics services of freight forwarding companies and thereby achieving an alignment of interests of both professions. My hypotheses and objectives are as follows:

### **First hypothesis:**

**Use of logistics service providers by actors of the food economy is insufficient.**

Therefore, my first objective was to analyse to what extent do freight forwarding companies provide logistics services to food economy companies at present.

**Second hypothesis:**

**Companies in the food economy do not use sufficient value-added logistics services.**

I aim to examine to what extent do companies in the food industry use value-added logistics services.

**Third hypothesis:**

**The relationship between food economy customers and logistics service providers is not strong enough to foster joint developments.**

Based on this hypothesis, my primary objective is to find the most effective type of relationship between food economy companies and logistics service providers. Hence, I would like to carry out an analysis of the depth of relationships between these two parties. For that purpose, I am going to use the method of process benchmarking.

**Fourth hypothesis:**

**There is a proven association between the most essential relationship characteristics and the length of time partnering in the collaboration of food economy buyers and logistics providers.**

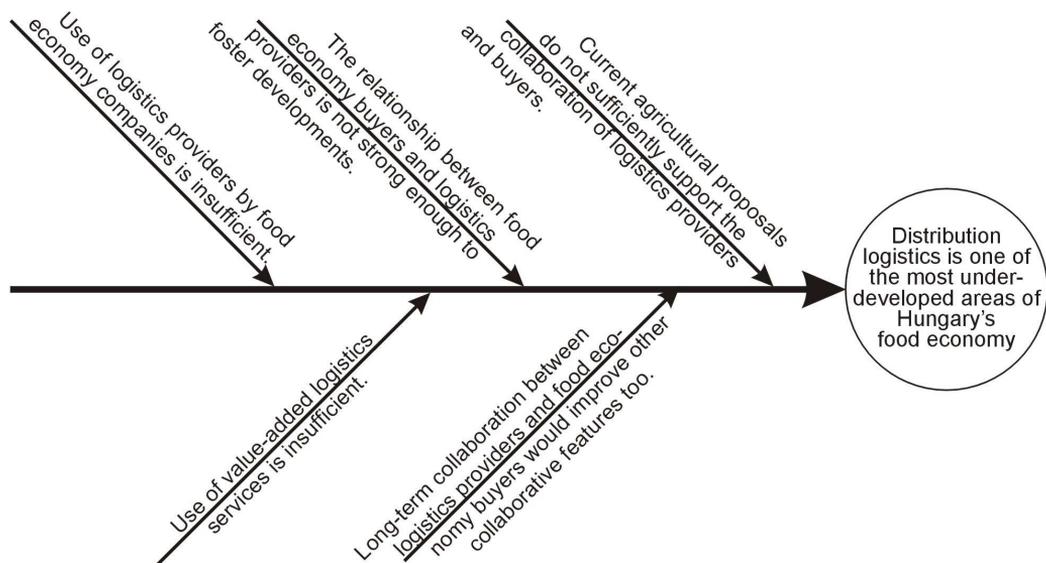
I would like to use the CRAMER and CHUPROV coefficients of association to prove this hypothesis in the field studied.

**Fifth hypothesis:**

**Current proposals for developing the food economy do not sufficiently support the development of distribution logistics.**

I would like to examine if the current agricultural support system facilitates the collaboration of food economy clients and logistics providers. If it does, why does this collaboration not work? If it does not, what could be done to align the interests of food economy clients and logistics providers?

Figure 1 summarizes the most important connections in the field studied, highlighting the circumstances influencing the development of distribution logistics in agriculture and food industry.



*Figure 1.*  
*Important factors described in my study affecting distribution logistics in agriculture and food industry*

## **2. Research methodology**

### *2.1. Data collection*

With self-designed questionnaires – completed by members of the Association of Hungarian Forwarding and Logistic Service Providers (AHFLSP) – I examined to what extent and which types of logistics services are used by agricultural and food industry companies.

### *2.2. The association analysis of logistical services using YULE's coefficient of association*

Based on the first two written questionnaires I had sent out, I could establish which logistics providers offered services and to whom, and which were their most common services. I analysed the relations between the different types of services using YULE's coefficient of association. This analysis made it possible for me to draw conclusions as to the planning of services, if introduced.

### *2.3. Measuring strength of buyer-supplier relations*

According to my hypothesis, the strength of buyer-supplier relationships can be safely identified with a modified version of HINES' (HINES 1998) method, which is used as a benchmark. HINES came up with a questionnaire-based method drawing upon SAKO's scientific work (1994) to analyse the strength of buyer-supplier relations. SAKO designed a questionnaire with 12 thematic questions and made a distinction among three types of trust in relations: weak, semi-strong, and strong. HINES (1998) added ten further questions to SAKO's list.

I adopted these questions to analyse the relations between logistics providers and buyers and carried out a survey among members of the AHFLSP as regards all buyers, especially agricultural and food industry buyers. I reformulated the questions so that they could be used to identify buyer-provider relations. Furthermore, I adopted SAKO's (1994) proportions to fit the 22-question questionnaire, and I gathered data on the logistics services of participant forwarders by administering the questionnaire face-to-face to respondents.

### *2.4. Process (generic) benchmarking*

Benchmarking is the comparative analysis of products, services and processes, which can take place internally or on a competitor level. In this process, our practices, products, services, processes and methods are compared with better ones. The comparison may be based on absolute index numbers, ratios, complex index numbers, or subjective value scales.

Benchmarking may be useful not only for companies or organizations but also for a certain profession or economic branch as it allows a greater range of comparisons to learn from. There are several types of benchmarking, but it is process benchmarking which compares the processes of different systems.

With the benchmarking method, I compared the features of relationships between logistics providers and their customers with that of the buyer-supplier relation. First, I had to identify the similarities and differences of the two types of relations. As a result, I concluded that the benchmarking method is applicable for the analysis of the strength of such relations.

*2.5. The cooperation analysis of agricultural/food economy clients and logistics providers using the CRAMER and CHUPROV coefficients of association*

Looking at the results of the third questionnaire, I had the opportunity to analyse the association between the collaborative patterns of buyers and suppliers. According to my hypothesis, this relationship cannot be successfully established without long-term collaboration, hence I examined how the length of time partnering and collaboration features typical of the strongest relationship, influence each other by using the CRAMER and CHUPROV coefficients of association.

### 3. Research findings

- 1) With my questionnaire survey among freight forwarding-logistics providers, I have achieved my objectives:

I have established the proportion and composition of logistics services in the largest trade union of freight forwarding-logistics providers. Based on the survey conducted, I was able to establish to what extent do logistics providers provide services for food economy companies: 59% of logistics providers offer freight forwarding services to food economy companies, and 56% to agricultural companies. I carried out further research on those logistics providers which offer services in agriculture. I also established upon what criteria are logistics providers selected by buyers.

This research was complemented by another survey conducted among members of the Association of Hungarian Logistics Service Centres in July 2009. It could be concluded that 53% of the members advertised themselves to be offering logistics services as well. Their 'Logistics Services' include warehousing, yard management, and special warehousing services such as moving store, bonded public warehousing, VAT warehousing or temperature-controlled warehousing. Domestic distribution is pronouncedly advertised by 25% of logistics providers, out of whom one provider offers regional distribution too. There are companies which provide 'complete customer service' or supply chain management services. Customs clearance is offered by 18% of the logistics providers, and many of them provide VAT and other (e.g. excise) tax administration services. Several companies put an emphasis on their value-added services. As for the advertised services, I would like to highlight product logistics, customized services, manufacturing logistics services, and as for the providers, those companies which offer food economy companies logistics solutions for sensitive, perishable, high-value commodities.

- 2) In the examination of value-added services, I came to the conclusion that the order of the most frequently accessed services is similar to the ones used by other buyers, however, their proportion is smaller. The following (descending) order of services can be established based on the frequency of their use: international freight forwarding → customs clearance → warehousing → domestic transport → international transport → home delivery → stock accounting → commissioning → marking, inscription → packaging. The survey proved that warehousing services are a prerequisite of value-added services. After analysing the questionnaires, it was ascertained that a logistics warehouse is an essential tool of comprehensive logistics services, where the provider carries out a variety of activities (quality control, packaging, loading, unit load formation, commissioning, etc). However, agricultural and food industry companies use conspicuously

more logistics services – if they hire a logistics provider – than all the other companies examined.

3) I used SAKO (1994) and HINES' (1998) theories to define the strength of relations between the buyer and the logistics provider, taking into account the following:

- the logistics provider sells a service, not a product
- the unique features of food products must be considered when establishing a business relationship

By using the benchmarking method, I established the features of relations between agricultural/food economy companies and logistics providers which hinder long-term, successful partnering relations.

Figure 2 shows the findings of my survey on the strength of relations between food economy buyers and their logistics providers.

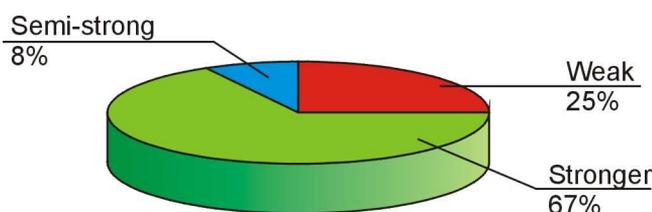


Figure 2.

*The strength of relations between food economy buyers and their logistics providers*

*(Source: calculations based upon own survey)*

Sadly enough, even a long-term cooperation between two weakly-related parties may remain weak.

With regards to the features of the relations between food economy buyers and logistics providers, 'contractual trust' is typically weak. Both food economy buyers interviewed and their logistics providers state that providers do not start working without a written order. This is not only due to the product type but to the synergy of the other association features: short-term collaborations and weak trust in service providers, which is justified since food economy buyers would not be able to afford creative, qualified, high-quality providers.

The other weak association feature is the competitive advantage offered to buyers by providers. Food economy buyers and their providers often believe that providers enhance the competitiveness of buyers, admitting that this is primarily true in the case of low-cost providers. Sadly enough, according to Hungarian scientific surveys conducted not only among food economy companies, price typically comes second to quality when selecting a logistics provider.

- 4) In my cooperation analysis using the CRAMER-CHUPROV coefficient of association, I proved that long-term collaboration between agricultural/food economy buyers and their logistics providers may help
- share technological experience
  - develop more up-to-date and effective services jointly
  - provide transparent cost structure
  - share liability
  - develop joint labour force training
  - develop joint strategy
  - share risks among the parties
  - which can prove fruitful for both parties.
- I could not establish an association between the length of time partnering and joint developments.

- 5) In my analysis of development assistance for the food economy, I looked at fields supported by the EU Structural Funds, the Agricultural and Rural Development Operational Programme (ARDOP), the New Hungary Development Plan (2007–2013), the European Agricultural Fund for Rural Development (EAFRD) and the *Development of Logistics Centres and Services* programme (National Development Agency, GOP-2007-3.2.1 and KMOP-2007-1.4.2). I ascertained that they do not offer support for facilitating the collaboration between food economy buyers and logistics providers.

#### **4. New and partly new scientific results**

- 1) I proved that the food economy does not use logistics providers to a sufficient extent in order to ensure competitive, up-to-date, inexpensive and high-quality distribution logistics, even though this solution would be more accessible and would produce better results when carrying out logistical developments.
- 2) I proved that the proportion of value-added services among logistics services used by food economy actors is smaller than optimal in spite of the fact that they ensure a high-level and more cost-effective product launch onto the market.
- 3) I adapted the SAKO-HINES method of analysing the strength of relations to examine the relationship between logistics providers and buyers. After examining the relations between actors of the food economy and their logistics service providers, I pinpointed the fields which ensure a relation of mutual benefit between them.
- 4) I proved that the length of time partnering has an effect on other collaborative features in the relations of food economy companies and logistics providers.

At the same time, I pinpointed the fields where even long-term collaboration fails completely or partially in strengthening relations.

- 5) By analysing the financial resources and support systems for developing the food economy, I proved that in their present form they are not suitable to bring food economy actors and logistics providers closer together, despite the fact that joint developments would produce faster or more considerable results than isolated ones.

## 5. Conclusions and recommendations

### 5.1. Conclusions

***The amount of logistics services, especially that of value-added services, is smaller than optimal in the case of the examined food economy companies.***

I came to the following conclusions based on my survey:

- A considerable part of freight forwarding-logistics providers do not provide services for the food economy. I would like to highlight a few facts from the reasons for this phenomenon:
  - ⇒ providers' tools and expertise are often inadequate for the products of the food economy
  - ⇒ providers are not convinced about the profitability of the food economy as far as necessary investments are concerned
  - ⇒ food economy companies are afraid of the high prices of up-to-date logistics services
  - ⇒ food economy companies are not convinced whether logistics providers will take into account the high quality standards of their products
- Agricultural and food industry production companies look for logistics providers whose qualities enable them to provide logistics services, as production companies are reluctant to participate in the providers' investment activities.
- Logistics providers seek to offer special services and conditions suitable for the unique needs of the products entrusted to their care. Thus, they would be able to provide much more extensive services to meet the individual needs of food industry products.
- Their services now include offers targeted especially at food economy buyers, providing temperature-controlled warehousing to safeguard quality.

***The relations between food economy companies and their logistics service providers are not strong enough to ensure sufficient development opportunities for them.***

The analysis based on HINES' method clearly shows that the relations of food economy buyers and their logistics providers are weak and offer uncertain opportunities for both parties. As a result, they do not support bigger investments, developments or long-term strategies. Consequently, they are not suitable for developing the distribution logistics of agricultural and food industry products to compete with the advanced logistics of companies with strong financial muscles. There are only a few 3PL providers which offer producers long-term cooperation agreements of mutual benefit.

***An association between the length of time partnering and the most essential collaboration features is detectable in the relations of food economy buyers and their logistics providers as well.***

The analysis of the association between the length of time partnering and the most essential collaborative features revealed that food economy buyers and logistics providers must seek long-term contractual relations in order to develop logistics services. This in return ensures partnering relations of mutual benefit. Even a long-term cooperation among the companies examined did not ensure the realisation of joint investment projects.

***Financial resources for the development of the food economy are not aimed at fostering cooperation with logistics providers.***

After examining the support system of agricultural and rural development, I drew the conclusion that in their present form they are not suitable to realise joint developments which would

- stimulate the necessary development of the food economy's distribution logistics
- ensure return on joint investments
- encourage logistics service providers to collaborate with the food economy so that their services in this field would ensure profitability for them

## **5.2. Recommendations**

My recommendations are as follows:

***Using logistics providers more extensively in the food economy***

I recommend that purchased services include warehousing, stock accounting, commissioning, quality control, packaging and other value-added services and that they be offered to companies which already use an external service provider for transportation, customs clearance, etc as food industry products lag considerably behind the competition in these fields.

***Establishing buyer-provider relations***

My research helped me to define the most important aspects of establishing relations between logistics service providers and food economy companies.

- Selecting the right logistics provider is the hardest task for a food economy buyer. A careful investigation of providers and their activities is necessary, for which, in my opinion, it is advisable to initially hire an expert. Due to the special logistical needs of food industry products, the quality of logistics provider activities is not much of a help in handling industrial products.

- Providers must be differentiated. It is advisable to establish long-term partnering relations with providers offering unique, high-quality services. Buyers should select a provider for which the order is as valuable as its activities in the buyer's turnover. (Providers offering routine services should be made to compete in order to reach the lowest prices possible.)
- In partnering relations, it is expedient to plan the length of time partnering to secure the realization of joint investment and development projects. This means a minimum of 3 years, but it is more advantageous to establish an even longer cooperation by extending the contract, even if this is what is quoted there.
- Logistics providers should be involved in the development of new sales strategies and services because the planning process may be enriched by their experience and know-how.
- A mutually transparent cost structure should be established. This way, both parties can check why costs increase, or what changes in costs may be brought about by new solutions, etc and they can tackle problems together.
- The responsibilities of buyers and providers must be specified so that both parties may be held responsible only for their own mistakes.
- Buyers should transfer the right of selecting and evaluating subcontractors to the providers. (for instance, they should not specify a carrier or a packaging entrepreneur but let providers select, monitor or evaluate the activities of subcontractors)
- Buyers should not aim to solve major problems occurring in the logistical process. They should leave these problems to the providers, thereby showing trust in their expertise and integrity. (for instance, customers complain about the quality of the wrapper, as a result of which not only should the wrapper be replaced, but packaging machines need to be converted as well.)
- Joint investments should be realised together with the provider. Without this, the provider can carry out developments only at a much lower pace, which leads to higher costs and lower service quality.
- Buyers should share the costs of training, retraining and further training employees handling the buyers' products with providers.
- Even though the particularities of agricultural and food industry products require an intensive written exchange of information, oral agreements should be regarded by both parties as equivalent to written agreements as a sign of mutual trust.
- The prerequisite of successful market participation is the supervision of production providers, who are an "extension" of manufacturers. The particularities of agricultural and food industry products require the

strict supervision of logistics service providers too. One possible way to do this is employing the specialists of the buyer at the provider company, the expertise of which should be enriched with logistics knowledge in the course of a joint training programme.

- A mutual, free-of-charge exchange of professional experience should be ensured during cooperation. The provider must apply the most effective methods available when handling products. The buyer must share the experience and information which ensure the continuous development of logistical processes.
- It is expedient to apply risk sharing in the cooperation, even if it is uncovenanted, so that neither of the contracting parties would have to face dire financial straits that would threaten their position. The movement of products in the logistical processes involves the risk of product damage which no provider could avoid.

### ***Pursuing long-term relations with buyers***

I recommend that whenever the logistical process of product manufacturing and distribution enhances market competitiveness, food economy companies should use high-quality logistics providers which seek to establish long-term relations and offer individual solutions, as this is more beneficial for both parties in terms of developments and sales improvement.

### ***Modifying sources of finance to support the collaboration between food economy and logistics providers more effectively***

- Joint investments based on long-term cooperation should be supported by forms of assistance which use the present sources of finance for this purpose.
- The 2006 MARD decree 13/2006 (II. 7.) on agricultural and rural development support – modified by MARD decree 25/2004 (III. 3.) – should be complemented so that support could be received to buy services.
- Income support may be claimed not only for animal husbandry but also for distribution.

My remarks concerning the New Hungary Development Plan (2007-2013) are the following:

In the priority area of *”Improving the competitiveness of the agricultural and forestry sectors”*

- joint proposals with the value-added service provider should be allowed under the title of *”adding value to agricultural products”*

- distribution logistics education should be eligible for support under the titles of a "*vocational training support*" and "*training and information support*"
- the "*Development of Logistics Centres and Services*" programme (National Development Agency, GOP-2007-3.2.1 and KMOP-2007-1.4.2) (and other new programmes) should make agricultural production companies or self-employed entrepreneurs eligible for support, which may be used jointly with logistics providers for investments in the development of distribution logistics.
- from the *European Agricultural Fund for Rural Development* (MARD decree 47/2008. (IV. 17.) ) support could be claimed to develop the trading of products.

Therefore, currently available sources of finance need to be modified to increase the competitiveness of agricultural and food industry products both in the domestic and foreign markets.

For this purpose, producer support systems should be extended in the following fields:

- recourse to expert advice on the development of logistics services, provider selection or provider agreement drafts
- realization of joint development investments with logistics providers for distribution of agricultural and food industry products
- purchase of tools, machinery and software as a joint investment with a logistics provider for logistics services to distribute agricultural or food industry products
- support for specialists' training, retraining, further training and language training to develop logistics services of agricultural or food industry products
- investment support for logistics service providers to improve services developed jointly with an agricultural or food economy production company for the distribution of agricultural or food industry products
- support for logistics service providers to purchase – as a joint investment with an agricultural or food economy production company – tools, machinery or software for handling agricultural or food industry products
- support for logistics service providers to train, retrain or further train specialists to able to handle agricultural or food industry products

Finally, let me draw the attention of logistics providers to a lesson to be learnt: when choosing a site for logistics service centres, physical proximity to producers is a decisive factor for foreign investors.

## PUBLISHED LITERATURE RELATED TO PHD TOPIC

### Articles in scientific journals (in English):

1. **Tátrai A.** (2003): The application of the benchmarking methods for rationalising the logistical costs of the agricultural machinery. Hungarian Agricultural Engineering: 16/2003 pp. 72-73

### Articles in scientific journals (in Hungarian):

1. **Tátrai A.** (2005): Szállítmányozók mezőgazdasági és élelmiszeripari vállalatok részére nyújtott logisztikai szolgáltatásai Gazdálkodás XLIV / 14. április. pp. 56-62.
2. **Tátrai A.** (2003): A folyamati (általános, generikus) benchmarking alkalmazása sikeres ipari SCM módszerek átültetésére élelmiszeripari és mezőgazdasági vállalatok gyakorlatában. "EU Working Papers" (BGF KKKF) 1/2003. p. 30-39.
3. **Tátrai A.** (2010): The role of logistics suppliers in the foodeconomy (accepted article by Supply Chain Monitor, to be published in the 2<sup>nd</sup> half of the year 2010)

### Other publications:

1. **Tátrai A.** (2002): A logisztika jelentősége az agrártermékek nemzetközi kereskedelmében. Budapesti Gazdasági Főiskola Tudományos Évkönyve. (Budapest, 2002) pp. 69-75.
2. **Tátrai A.** (2002): A logisztikai költségek kimutatásának nehézségei a mezőgazdaságban és az élelmiszeriparban BGF Tudományos Évkönyv 2002. Budapest, 2003. pp. 218-223.
3. **Tátrai A.** (2004): A magyar szállítmányozási vállalatok logisztikai tevékenysége. Magyarország a gazdasági fejlődés keresztútján BGF Tudományos évkönyv pp. 151-161.
4. **Tátrai A.** (2005): A logisztikai szolgáltató és a megbízó közötti szerződés sajátosságai. BGF Tudományos évkönyv pp. 143-148.
5. **Tátrai A.** (2007): A szállítmányozás-logisztikai szolgáltatók szerepe az agráriumban. Szakmai Füzetek BGF 20. szám pp. 87-99.
6. **Tátrai A.** (2008): A logisztikai szolgáltatók szerepe az agrárlogisztikában. Logisztikai Évkönyv. 2007-2008. Magyar Logisztikai Egyesület Budapest. pp. 91-94.
7. Horváth, G., **Tátrai, A.** (2007): A mezőgazdasági és élelmiszeripari vállalatok és logisztikai szolgáltatóik együttműködési sajátosságainak vizsgálata a kapcsolati jellemzők elemzésével. BGF Tudományos Évkönyv Budapest, 2008. pp. 156-162.

- 8. Tátrai A.** (2010): A logisztikai szolgáltatók szerepe az élelmiszergazdaságban. Supply Chain Monitor, accepted paper, to be published in the 2nd half of 2010.

#### **Scientific conference lecture published in English:**

- 1. Tátrai, A.** (2009): The role of logistics service centers in the Hungarian food economy. Agri-food Systems and Linkages with Global, International and Domestic Economies Warsaw University of Life Sciences Press p:108-115.

#### **Scientific conference lectures published in Hungarian:**

- 1. Tátrai A.** (1999): A mezőgazdaság és élelmiszeripari termelés hatékonyságának növelése a fuvarozás, szállítmányozás és logisztika eszközeinek felhasználásával. 1999. VI. Értékelemzési Konferencia előadások, I. kötet, Budapest, p. 196-204.
- 2. Tátrai A.** (1999): A fuvarozás, szállítmányozás és a logisztika szerepe az agrár- és élelmiszeripari termelés hatékonyságának alakulásában (VISION 2000. II. Konferencián tartott előadás) Megjelent: Az intézményrendszer helyzete és fejlesztése az agrárgazdaságban, az EU – csatlakozás tükrében. Gödöllő, 2000. II. kötet. pp. 78-87.
- 3. Tátrai A.** (2000): A mezőgazdasági és élelmiszeripari termelés hatékonyságának növelése a fuvarozás, szállítmányozás és logisztika eszközeinek felhasználásával (Elhangzott: VISION 2000. III. Konferencián, Gödöllőn, 2000.10. 10-én)
- 4. Tátrai, A.** (2008): A kapcsolati erősség jelentősége a logisztikai szolgáltatók és megbízóik együttműködésében. "TÁRSADALOM ÉS GAZDASÁG -új trendek és kihívások" EKF nemzetközi tudományos konferencia kiadványa. Baja p:165-170.
- 5. Tátrai A.** (2004): A szállítmányozók és megbízóik kapcsolatainak elemzése a logisztikai szolgáltatásokban „30 év Győrben” Jubileumi Tudományos Konferencia. Szekció előadások. Kiadó: Universitas –Győr Kht. pp. 232-238.
- 6. Tátrai, A.** (2009): A logisztikai szolgáltató, és szerepe a magyar élelmiszergazdaságban. 51. „Georgikon napok” Tudományos Konferencia kiadványa Keszthely p:143-144.