Department of Agricultural Economics and Rural Development

COLLECTION OF THESES

Áron Török

Hungaricums – Hungary's geographical indications

The role of origin in agriculture and food production in the 21th century – lessons learnt from the case of the pálinka

PhD dissertation

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1 Research premises and justification of the subject matter

1.1 Justification of the subject matter

The product quality policy of the European Union essentially has three pillars: products with geographical indications, traditional and special products, and organic products. Therefore, it is clear that EU decision-makers prefer the concept of role of origin, where the product gains its uniqueness from the relationship with the production area and its high quality is due to the accumulated know-how of the producing region.

High-quality Hungarian products are often called "hungaricum", although this concept had no clear definition until the Hungaricum Act came into force in 2012. Therefore, in this dissertation hungaricum is defined as products also recognized by the EU's geographical indication system.

Based on the above, this thesis aims to find a connection between competitiveness (profitability) and the advantages of the European geographical indication system.

1.2 Research premises

Although the connection between products and their production area can be traced back over several centuries, research in agribusiness has only devoted increasing attention to this topic in the last 20 years. Mostly those countries have made efforts to run research programmes on this topic that have a significant interest in the system of geographical indications (the Mediterranean states, Netherlands, UK, Germany, and Switzerland).

The framework programmes of the European Union also devote great attention to this topic, and it is mainly the above states that participate in these research projects – thus far the role of the new member states (including Hungary) is not remarkable.

The primary institution of agricultural economists in Europe is the EAAE (European Association of Agricultural Economists) that organises conferences and seminars in order to disseminate the most recent scientific findings. In the last 15 years, four seminar topics were directly related to the system of geographical indications.

The related research highlights the importance of the topic, and also underlines the fact that Hungary is lagging behind in this field. Although several doctoral dissertations (Malota [2003], Pallóné [2003], Szabó [2006], Panyor [2007] and Popovics [2009]) dealt partially with this topic, the connection of origin and competitiveness remains mostly under-researched in Hungary. Therefore, the goal of this thesis is to fill this gap and uncover new connections.

1.3 The hypotheses

The main objective of the thesis is to examine the role of origin-protection from an economic point of view; to find and characterize any connection between geographical indications and the competitiveness of products. Since both qualitative and quantitative research is needed in order to analyze the topic, a description of the legislative background and careful calculations of competitiveness will both be provided.

The main aim of the research is to analyse the economic influence of the geographical indications on agriculture and food production in the 21th century, especially in the case of Hungary. The main assumptions that this thesis is aiming to examine and prove are the following:

The protection provided by the legislative background ensures a direct competitive edge for those products that have geographical indications.

The above statement will be tested on both national and international levels, therefore the two main hypotheses are the following:

The level of profitability on the national level is higher among companies that produce products with geographical indications than among those companies that do not have the option of producing such products.

States with geographical indications protected products realise a revealed comparative advantage in international trade, compared to the states without such products.

Besides testing these hypotheses, the dissertation also focuses on the main dimensions of the EU's geographical indications system and takes a stand on the use of the term "hungaricum".

The primary focus is on the EU's geographical indications system, since the Hungarian products are part of this system. The subject of the quantitative research is the pálinka, the only Hungarian spirit with geographical indication; a product that realised significant success in popularity between 2000 and 2010, partly due to its legislative protection. Therefore the period this thesis focuses on is the last 20 years of the legislative and regulation background, and the period of 2008-2011 for the competitiveness calculations.

2 Methodology used

In this thesis, the role of geographical indications will be analysed in the case of pálinka, both on a national and international level.

2.1 Role of geographical indications on national level

In this part of the thesis I would like to test the hypothesis as to whether the geographical indications have an impact on the profitability of the Hungarian distilleries. In the PGI pálinka's code of practice the geographical areas are clearly defined therefore it is easy to distinguish PGI distilleries from non-PGI distilleries. In my research I will first calculate the main basic economic indicators (revenue, total assets, profit before tax etc.) afterwards the most important ratios (ROS, ROA, ROE etc.) will be tested.

After the descriptive statistic analysis the dataset will be tested with multivariable analysis. Cluster analysis is a widely used method for multivariable analysis. The available dataset (as described later) requires a hierarchic cluster analysis (Hair et al [1998]); in this thesis the Ward cluster analysis will be used, which separates the units to clusters according to the smallest variance-growth. Finally, correlations will be calculated in order to test the dummy variables of the geographical indications, to establish whether these have an impact on profitability.

The time period is the four business year between 2008 and 2011. This time-scale has been selected due to the importance of the Pálinka Act and the EC geographical indication regulation for spirits, both of which came into force in 2008. On the other hand, in the first decade of the 21st century many new pálinka distilleries have only just started their activity therefore their economic performance can only be measured in the second half of the decade. Lastly, the pálinka market is becoming saturated, thus the pálinka market of 2008-2011 can be considered as an already matured market.

For the several statistical calculations the software of STATA 12.0 was used.

The calculations used financial data from 65 distilleries; and 20 of which had permission to produce one of the five Hungarian PGI pálinka, while the other 45 were excluded because of their geographical positions. The size of the sample covers most of the professional distilleries, although it is important to note that many of the distilleries started their professional activity during the selected time period. In order to distinguish the PGI and non-PGI distilleries, the companies' copy of register was compared with the geographical locations, therefore the selection was obvious. The data for calculations was lifted from the

financial statements (income statement, balance sheet, notes to the financial statement etc.) of the selected companies.

As the data are from the financial statements were prepared by the companies themselves, these may not be fully representative entirely or factual, particularly in the case of the profit level. However, since there is no other available dataset that would be more reliable, the thesis utilises the data of these financial statements.

2.2 Role of geographical indications on international level

The various methods concerning the theory of revealed comparative advantages provide the basis for this analysis. The original index of revealed comparative advantages was first published by Balassa in 1965, who defined the following :

$$B_{ij} = \left(\frac{X_{ij}}{X_{it}} \right) \Big/ \left(\frac{X_{nj}}{X_{nt}} \right), \tag{1}$$

where x means export, i indicates a given country, j is for a given product, t stands for a group of products and n for a group of countries. It follows that revealed comparative advantage or disadvantage index of exports to reference countries can be calculated by comparing a given country's export share in its total export - in correlation with the focus country's export share in their total export. If B>1, a given country has a comparative advantage compared to focus countries - or, in contrast, a revealed comparative disadvantage.

The Balassa-index is often challenged because it is seen as neglecting the different effects of agricultural policies and asymmetric values. Trade structure is distorted by different state interventions and trade limitations, while the asymmetric value of the B-index reveals that it extends from one to infinity if a country enjoys comparative advantage from a product, but in the case of comparative disadvantage, it varies between zero and one, which overestimates a sector's relative weight. This latter problem was partly solved by Hinloopen-van Marrewijk [2001] with their classification of the B-index:

- Category A: $0<B\leq1$
- Category B: $1<B\leq2$
- Category C: $2<B\leq4$
- Category D: $4<B$

Product groups pertaining to Category A show a lack of comparative advantage, while those in Category B show a weak comparative advantage, to Category C average and to Category D a strong comparative advantage.

Vollrath suggested three different specifications of revealed comparative advantages in order to eliminate the above disadvantages (Vollrath, 1991): relative trade advantage index, logarithm of relative export advantage, and relative competitiveness. Relative trade advantage index (RTA) takes both exports and imports into account and is the difference between relative export advantage index (RXA) and the relative import advantage index (RMA).

Expressed pro forma:

$$RTA_{ij} = RXA_{ij} - RMA_{ij} \tag{2}$$

where $RXA_{ij} = B_{ij}$ and $RMA_{ij} = (m_{ij} / m_{it}) / (m_{nj} / m_{nt})$ (m means the import), that is,

$$RTA_{ij} = \left(\frac{X_{ij}}{X_{it}}\right) \Big/ \left(\frac{X_{nj}}{X_{nt}}\right) - \left(\frac{M_{ij}}{M_{it}}\right) \Big/ \left(\frac{M_{nj}}{M_{nt}}\right) \tag{3}$$

If RTA > 0, this reveals that a given country has a comparative advantage compared to focus countries - or, in contrast, a revealed comparative disadvantage. This index takes into consideration effects of demand as well as those of supply, therefore it is closer to the comparative advantages approach than indices based on exports. The higher the value, the more competitive the country is. Vollrath named this second index the logarithm of relative export advantages (lnRXA) and named the third index revealed competitiveness (RC), which is the difference between the logarithm of relative export advantages and that of relative import advantages:

$$RC_{ij} = \ln RXA_{ij} - \ln RMA_{ij} \tag{4}$$

Positive lnRXA and RC indices indicate a competitive advantage, while negative values indicate competitive disadvantage. A benefit from their use - compared to the first two indices - is that these are symmetric to the pole. Furthermore, these account for export and import side trade distortions and are also able to manage intra-industry trade. This latter advantage is at the same time the disadvantage of the RC-index: if there is no intra-industry trade, the index cannot be interpreted.

International and national literature interlinks the model of revealed comparative advantages with new streams of trade theories, allowing the execution of even deeper competitiveness analysis (Gehlhar-Pick, 2002, Fertő, 2004). This approach stresses that price and quality

competition in two-way trade is worth separating. To achieve this goal, the literature introduced a new concept: unit value difference (UVD), which is the difference between export and import unit values, defined as follows:

$$UV^{x}_{ij} = X_{ij}/Q^{x}_{ij} \text{ and } UV^{m}_{ij} = M_{ij}/Q^{m}_{ij,} \text{ therefore } UVDij = UV^{x}_{ij} - UV^{m}_{ij} \quad (5)$$

where X means export, M means import, Q stands for quantity, i indicates products, and j indicates the partner-country. The formula above means that the difference of a product group's unit value can be defined (UVD) if import unit value (UV^{m}_{ij}) is deducted from export unit value (UV^{x}_{ij}); that is, export value achieved from a country's given product group (X_{ij}) is divided by export quantity (Q^{x}_{ij}), then divide import value (M_{ij}) by import quantity (Q^{m}_{ij}) and deduct the two values from each other. Trade balance (TB) can also be easily calculated from the formula above: ($TB_{ij} = X_{ij} - M_{ij}$), and is the difference between export and import values of a given product group running to/coming from the focus country.

By using the two new concepts (UVD and TB), the literature creates the following categories in order to separate price-quality competition (GP-index on the basis of Gehlhar-Pick, 2002):

- Category A (successful price competition): $TB_{ij} > 0$ and $UVD_{ij} < 0$,
- Category B (unsuccessful price competition): $TB_{ij} < 0$ and $UVD_{ij} > 0$,
- Category C (successful quality competition): $TB_{ij} > 0$ and $UVD_{ij} > 0$,
- Category D (unsuccessful quality competition): $TB_{ij} < 0$ and $UVD_{ij} < 0$

The four categories above are well able to separate what competitive position a country's product groups has from a price and quality point of view. It should not be forgotten that these categories implicitly refer to two-way and not one-way trade (the latter of which means just export or import from a product group).

In order to calculate the various indices mentioned above, the thesis has used the EUROSTAT trade database (CN8) using eight-digit breakdown, resulting in five categories for spirits distilled from fruits, and for the three benchmark products also five products groups was tested in order to get a clear picture of the comparative advantages of the traditional fruit spirits.

In analysing the results, it should be noted that while the CN8 database is a very detailed dataset, there is no possibility in the database to distinguish the PGI products from non-PGI products. Therefore, the thesis assumes that the aggregated dataset of international trade also contains the data of the origin-labelled spirits.

The dataset is from 2001-2011, thus it is possible to analyse the effect of the EU-accession of the new member states. Due to the deficiencies of the database and the scope of the thesis, the indices are calculated for Bulgaria, the Czech Republic, Hungary, Poland, Romania, and Slovenia, besides the benchmarking three countries (Spain, France and Italy).

3 The findings of the dissertation

3.1 The role of geographical indications on the national level

Beyond the analysis on the national level, there was an assumption that there was a significant difference between the profitability levels of the PGI and non-PGI distilleries and that this difference can be connected to the geographical indications.

For profitability ratios the most commonly used indicators (ROE, ROA, and ROS) were used in order to analyse the pálinka industry. Due to the wide variety of dividend and taxation policy in the Hungarian pálinka sector, the formula was modified and profit/loss before tax was used instead of profit/loss after tax and dividends, in order to achieve more comparable results.

The profitability ratios still show the advantage of the PGI producers; during the selected time period all three ratios were significantly higher for PGI distilleries. The most noticeable difference was in ROA, where in certain years PGI producers had three to four times higher profitability level.

The stability of the indicators was examined through the Markov chain analysis. The results show that a distillery with positive profitability in one year has a high probability (80-81 percent) of remaining profitable in the following year as well, while for those with loss the chances of remaining in the negative is 48-60 percent. Regarding the change in categories to become profitable, there is a chance of 40-52 percent, while for the opposite change there is a probability of 19-20 percent, based on the results of the distilleries in the four selected years.

As for the economic calculations, the 65 distilleries were divided into two groups based on their relationship to geographical indications. In the following the dataset will be analysed with a cluster analysis without any pre-conditions in order to show which distilleries are closest to each other in terms of economic performance. The cluster analysis was carried out for the 2010 data because the descriptive statistical data showed that the difference between PGI and non-PGI distilleries was the lowest in that year.

According to the Duda-Hart and Calinski-Harabas tests, four clusters should be created with the Ward linkage process. Therefore, based on economic performance, four different groups of pálinka distilleries can be created.

The first cluster (“small, loss-making”) includes the smallest distilleries (approx. 65 million HUF revenue, 23 million HUF loss before tax and 8 employees). It is also an important

characteristic of these producers that their share equity and total assets are the lowest, and usually these distilleries have been founded in recent years and try to keep afloat.
On the contrary, in the second cluster ("large PLCs") we can find the biggest distilleries with numerous employees and usually with a company form of PLC. Due to their high revenue, they have resources for their own investments.
In the third cluster ("striving") there are the small distilleries founded at the beginning of the previous decade due to the pálinka-boom in Hungary. They have growing numbers but are yet to reach their optimal profitability capabilities.
The fourth cluster ("dynamic and famous") represents the distilleries with the most dynamic growth with average size. Many of these distilleries are in the frontline of the world spirit production according to their results in several spirit competitions. Their revenues exceed even the income of the "big PLCs" and these also have many employees.
For the hypothesis it is worthy to take a look at the share of PGI producers in these clusters. íin the full sample the share of PGI distilleries is 31 percent, among the "big PLCs" there is no PGI distillery, while almost every "dynamic and famous" distillery is with PGI. In the other two clusters the share is around or above the average. Altogether, we can say that among the successful distilleries (in terms of economic performance) the PGI distilleries are overrepresented but it is also clear that to be PGI alone does not guarantee success.
Finally, the connection between the profitability ratios (ROE, ROA, and ROS) and the PGI dummy variable was tested. The regression analysis on the panel data did not bring significant results regarding the geographical indications. As for the relation between profitability ratios and the non-economic characteristics (e.g. number of employees, age, main activity, PGI or non-PGI distillery) of the distilleries, we can say that the PGI dummy is not significant. Regarding the other variables, it is visible that the company form positively affects both ROE and ROA, while export is negatively connected to ROE. These results can be explained by the fact that firms with a company form of LTD have the sufficient size that can be managed in an effective way and can be turned into a profitable enterprise; while, as it will be shown in the following part, the Hungarian distilleries usually export their low-priced products, therefore the role of export in profitability is not definitely favourable.

Because of the failure of the regression analysis, basic correlation calculations were also made in order to test the direction of the connections. Regarding the correlation coefficients, we can conclude that the connections are not particularly tight but that these are usually positive

(except in the case of ROE in 2010 and 2011). This means that there was a positive correlation between profitability and geographical indications in most of the cases.

3.2 The role of geographical indications on the international level

The analysis on the international level tested the assumption that Central European countries with PGI spirits have revealed comparative advantages based on their international trade activities. Specific calculations were carried out to analyse the quality dimension of the competitiveness, assuming that origin labelled products were quality-competitive. Brandy de Jerez, calvados and grappa were involved as a control group and their case showed that Southern European countries usually have strong comparative advantages and that these products are often quality-competitive. On the other hand, the calculations for Central European trade with the EU15 show a completely different picture. First, the selected countries became net importers after the EU accession and this market-loss was very noticeable in Hungary. However, the indicators of the comparative advantages did not show similar results for other Easter European states: Poland without any PGI spirit (and therefore without any export of this product) was lacking comparative advantages based on all the indicators, while the Czech Republic (also without any PGI spirit) had a very good position. In the case of Hungary – one of the largest fruit spirit producer of the region – the indicators did not show a clear picture, therefore no relevant conclusion could be made on this basis. Regarding the price and quality competitiveness, the calculations showed a more universal result; the countries of the region were not quality nor price competitive in most years, regardless of geographical indications.

In order to validate the methodology and? to prove my first hypothesis, the concept was tested on three Southern-European products. In the case of all three selected products, it was common that they were registered PGI products well known even outside the producing countries. The hypothesis was that in the case of these products the Balassa-indices would show revealed comparative advantages, while in the Gehlhar-Pick classification these products would be quality-competitive due to the differentiation and protection provided by the geographical indication.

As the numbers clearly demonstrate, in the selected period all products had revealed comparative advantages. According to the Hinloopen-Marrewijk classification, the Spanish spirit had average, while calvados and grappa had strong comparative advantage.

Regarding quality/price competitiveness, Brandy de Jerez was competitive with lower export unit prices, while the French and Italian spirits were competitive with higher unit prices in most years , therefore these latter products had quality-competitiveness.

The previous results confirm the assumption that a traditional product with limited area of production could have comparative advantages in international markets. Moreover, in the case of calvados and grappa it can also be noted that higher quality that also appears in prices and in the quality advantages (partly due to origin protection) could be transformed into economic advantages.

There is a notable difference in the case of the origin-labelled fruit spirits in the Central European countries. The results show that in these countries the EU accession – similarly to many other products – had a negative impact on the trade balance of fruit spirits. Only the Czech Republic had a positive balance in several of the years that followed the accession, and all other countries – including Hungary with a former surplus – were usually in a net importer position. Due to the EU accession the trade balance of the sector has significantly worsened.

In light of the previous balances, it is helpful to calculate the comparative advantages of these countries. The results show that only in Poland (a state without PGI spirit) was comparative disadvantage indicated by all four indices. In the case of Hungary the results are mixed, but on the other hand other countries with PGI spirits (Bulgaria, Romania, and Slovenia) had a revealed comparative advantage indicated by all indices, with Romania having a distinctly strong advantage. Still, it has to be considered that the Czech Republic (also a state without PGI spirit) had a strong comparative advantage during the examined period.

The calculations of price/quality competitiveness yielded similar results. According to the two-way fruit spirit trade, the majority of the Central European countries were not competitive in terms of price and quality. A worsening tendency following the EU accession is also visible here.

Still, there is a significant difference between the performance of several countries. In certain years Bulgaria and the Czech Republic had price or quality competitiveness but other countries tended to not be competitive. Compared to 2011 – when half of the countries were price or quality competitive – in 2009 a significant change can be observed because all countries became non-competitive. By the end of the selected period, the Central European states were neither quality nor price competitive. As the most important reason, the EU-accession should also be mentioned again; the numbers clearly show that the surplus of fruit spirit trade turned into deficit, and products with lower unit price were subject to decreasing export, while mainly products with higher unit value were imported.

Based on the above, the second hypothesis of the thesis – countries with products protected by geographical indications realise a revealed comparative advantage in international trade – can be rejected. Opposing to the Southern European examples among the Central European origin-labelled products there was no connection between geographical indications and comparative advantages; in the selected product groups the possibility of the quality-based differentiation did not positively influence the positions in international trade.

4 Summary of the conclusions

Based on the findings of the thesis, several conclusions can be made. First, it has to be underlined that the role of geographical indications in food production is more and more important. Although in Europe we can see national geographical indication systems with more than a hundred years of history, the community-level regulation was born in the last few decades. The role of time is unquestionable, as the case of the most important beneficiary, the Southern-European countries show, embeddedness and general acceptance of these systems are necessary for success. Moreover, the available resources also have a great importance as consumers need to understand and memorise the difference of these products. The practice of the EU contradicts this latter approach as community logo exists only for agricultural and food products, and there is no symbol for the origin labelled wines and spirits yet. The change of this mixed approach is necessary.

The European system is the most important geographical indication system in the world both in terms of its history and its current economic importance. The demand and, consequently, the recognition is highest in the case of these registered products, and the most important products are well known all over the world. Therefore, it is evident that for the new member states that joined to EU in 2004 and 2007 this system is decisive, as their most important trade partners also operate within this system. The number of registered Central European products is relatively low at the moment, but this time-lag could be compensated with a combination of national regulation.

One of these national regulations is the Hungaricum Act, which regulates the denomination of hungaricums and was accepted after great expectations in 2012. However, the regulation attempts to satisfy too many conditions, therefore it is to be feared that it can not provide exclusivity for those products that are most important to Hungary. Thus, this thesis suggests that hungaricums could only be products that are also well-known outside the country and have geographical indications. The Pálinka Act also showed that if quality standards are regulated, consumers (even the very price-sensitive Hungarian consumers) are willing to pay the premium price for this speciality. The concept of geographical indications could also be profitable as the case of the pálinka showed; providing an example for other products to follow .

Based on the two main hypotheses, it can be underlined that producing origin-labelled products could provide surplus for the producers even under the given recognition and market circumstances. There is a quality rent observable for the pálinka due to the specified quality

standards and uniqueness. It is true for pálinka in Hungary and for some other well-known PGI spirit (e.g. calvados, grappa) in international trade – but it is not observable for Central European origin-labelled fruit spirits in international trade. At the moment, these products are well-known and demanded only in their producing countries, but still it is one of the best tools to become more popular and benefit from the possibilities of the geographical indications – as do their most important competitors.

The thesis answers the two main hypotheses and several other questions, but also highlights new research questions and directions. Central European countries are still at the beginning of the process that helps their typical national food products with the tools of geographical indications to become successful in the globalised food markets. As time passes, a longer period could be analysed to discover further tendencies.

Apart from the time period, the subject of the thesis should also be extended to also conduct research on other products. The thesis focuses on only one product group of Hungary – in the future, other origin-labelled value chains should also be analysed – even with a similar methodology.

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