TÖRÖK Áron* and JÁMBOR Attila*

Competitiveness and Geographical Indications: the case of fruit spirits in Central and Eastern European countries

In 2004 and 2007 twelve countries joined the European Union (EU), bringing about significant changes in the field of European agriculture. One of the major changes was the transformation of the agri-food trade of these countries. This paper analyses the effects of EU enlargement on the competitiveness of fruit spirits in six Central and Eastern European countries (CEECs), especially regarding geographical indications, by using the theory of revealed comparative advantages. Although the majority of the studied CEEC fruit spirits was both competitive and had a comparative advantage in the EU-15 beverages market in the period 2001-2011, during this time the competitiveness in terms of quality and price of fruit spirits in the region declined. The results indicate that these countries are losing their market positions in their traditional fruit spirit sector in the EU-15 beverages market in spite of the fact that the majority of these products have a geographical indication. These changes are in line with the overall trend of an increasing trade deficit in the overall beverages, spirits and vinegar market of the six CEECs with the EU-15 after 2003. By contrast, the well-known grappa of Italy is shown to be competitive in terms of both price and quality during this period. It is clear that such products with geographical indications can be competitive in European markets.

Keywords: competitiveness, geographical indications, fruit spirits, Central and Eastern Europe

* Corvinus University of Budapest, 1093 Budapest, Fővám tér 8. Hungary. Corresponding author: attila.jambor@uni-corvinus.hu

Introduction

In 2004 and 2007, twelve countries joined the European Union (EU), bringing about significant changes in the field of agriculture. One of the major changes was the transformation of their national agricultural trade (Gorton *et al*., 2006, Bojnec and Fertő, 2008a,b; Török and Jámbor, 2012). EU membership has made these countries part of a large market, thereby changing the competitiveness of their agricultural products, realised through agricultural trade. In such an enlarged, competitive environment, the role of high quality, region-specific products has measurably increased. These products, in many cases possessing Protected Designation of Origin (PDO) or Protected Geographical Indication (PGI) status, have special characteristics that European consumers appreciate.

PGI and PDO products currently play an important role in the EU's policy on agricultural product quality but, as very little analysis has been made of the competitiveness of products with geographical indication, the link between PGI/PDO products and their competitiveness remains unclear. Therefore, the aim of this paper is to assess whether products with geographical indications have any competitive and/or comparative advantage in European markets. To meet this aim, the paper analyses the competitiveness in EU-15 markets of traditional fruit spirits produced in six Central and Eastern European countries (CEECs). The longer established EU Member States have long traditions of producing highly matured spirits including such famous products as whisky, brandy and cognac, while CEECs have their own specialty – spirits distilled from fruits – and many of them have PGI status (Appendix 1).

Competitiveness of CEEC agriculture following EU enlargement

Many studies have looked at the competitiveness of agriculture in CEECs following EU enlargement. Gorton *et al*. (2006) analysed the international competitiveness of

Hungarian agriculture by calculating domestic resource cost ratios and making estimations for 2007 and 2013. They projected that EU enlargement would have a negative impact on the international competitiveness of Hungarian agriculture by increasing land and labour prices. Similar estimations were conducted by Erjavec *et al*. (2006), who forecast that the newly accessed Member States would gain from higher prices and budgetary support, indicating real improvements in most agricultural sectors over recent production levels. Ivanova *et al*. (2007) analysed Bulgarian agriculture following EU accession using the AGMEMOD model and found that accession would have a very positive effect on the crop sector in Bulgaria, whereas the effect on the livestock sector would be the opposite.

The impacts of EU accession on agriculture in the New Member States were studied by Csáki and Jámbor (2010) who concluded that EU accession has had an overall positive effect, although Member States capitalised the opportunities provided by the enlarged market in different ways. Kiss (2011) added that competition in domestic markets in CEECs increased significantly, resulting in massive import penetration. Kiss (2007) analysed changes in the agri-food trade of Hungary since EU accession and concluded that national agri-food trade balance with the EU-27 decreased during that period. Rusali (2010) investigated post-EU accession trends in Romania's agri-food trade and showed that the low competitiveness of the processing sector was the main constraint in achieving higher revenue from exports.

Toming (2007) looked at the impact of EU accession on the export competitiveness of the Estonian food processing industry and showed that it has not yet been able to reap the benefits of the EU market. Bojnec and Fertő (2008a) analysed the agri-food trade competitiveness with the EU-15 of the newly accessed Member States and concluded that trade has increased as a result of EU enlargement, though there have been 'catching-up' difficulties for some Member States in terms of price and quality competition, more so in higher value-added, processed products. After studying price and quality competition in Hungarian–Slovenian bilat-

eral agri-food trade, Bojnec and Fertő (2008b) confirmed that the separation of one-way non-price competition from price and quality competition in two-way trade (the latter of which means both exports and imports of a product group) is important to underline the reality of economics and trade in small countries. Bojnec and Fertő (2012) investigated the complementarities of trade advantage and trade competitiveness measures for the agro-food trade of five CEECs with the EU and confirmed that the revealed trade advantage is consistent with the one-way export and the successful price and quality competition categories in two-way trade.

Török and Jámbor (2012) also found that almost all newly accessed EU Member States experienced a decrease in their comparative advantage following accession. As for the stability of comparative advantage, their results suggest a weakening trend, underpinned by the convergence of the pattern of revealed comparative advantage. From analysing Hungarian agri-food trade after EU accession, Jámbor and Hubbard (2012) reached similar conclusions and added that EU accession has radically changed the survival time of agri-food trade, in that revealed comparative advantage is shown not to be persistent.

The economics of geographical indications

There has recently been an increasing amount of research on the economic impacts of geographical indications of wines and spirits. Malorgio *et al*. (2007) focused on the influence of the European wines with PDI status in the world market and showed that there is growing consumer attention and interest towards these products, although these wines are usually sold at a higher price. Research on the grappa industry in Trentino, Italy concluded that local producers considered geographical indication as one of the most important characteristics of the region (Trevisan, 2008). Trejo-Pech *et al*. (2010) examined the case of *mezcal*, a Mexican spirit distilled from agave, and suggested that the success of this ancient local product was due to its protected denomination awarded in 1995, according to which the producers could use the legal protection as a tool for product differentiation.

The analysis of the importance of non-alcoholic food and agricultural products also occupies a significant place in the literature. Teuber (2007) emphasised that geographical indications are useful tools for product differentiation and that therefore developing countries make attempts to secure such protection for their products. Belletti *et al*. (2007) pointed out that companies in Toscana, Italy use geographical indications for numerous reasons in order to succeed in world markets. They help to protect the products from cheaper imitations and the companies benefit from the the reputation of the region of origin. In Norway, Borch and Roaldsen (2007) found that the protection of the denomination of origin is a factor of competitiveness, especially for the high quality traditional food products in the premium sector.

Much of the literature underlines the fact that geographical indications are accompanied by higher perceived quality and therefore higher prices. Loureiro and McCluskey (2000) examined the case of Galician veal and stressed

that geographical indication is a powerful marketing tool in combination with quality indicators. Based on the case of single-origin coffees, Teuber (2007) stated that coffees with geographical indication command a premium price because of the reputation of their high perceived quality. Monteiro and Lucas (2001) found that geographical indication protection is the most important attribute for consumers in the case of traditional Portuguese cheese; more important than price, quality certification label or ingredients. It is logical therefore to assume that products geographical indications are associated with higher perceived quality.

Concerning the effect of quality-based certifications (geographical indication, bio, GMO free etc.) on willingness to pay, two important factors should be underlined. On the one hand, the price premium of the certified products can be afforded only by the consumers of the developed countries (Henneberry, 2004); therefore at present this issue should be examined in European and North American markets. However, in some developing countries (primarily China), such products are experiencing an increasing demand because of their prestige and the fact that they are often a status symbol (Heslop and Papadopulos, 1993; Zhou and Hui, 2003). Moreover, there is a strong positive correlation between the demand for quality-certified products and the level of urbanisation. Bureau and Valceschini (2003) suggest that the bigger is the distance between the consumer and the producing area, the greater is the need of the product to be certified by quality.

The paper is structured as follows. The next part describes the methodology used for calculations, while the third part presents our results on the competitiveness of CEEC fruit spirits in EU-15 markets. The fourth part compares results with the performance of Italian grappa, while the last part concludes.

Methodology

The competitiveness of PGI/PDO products can be well investigated through their international trade performance, thus the analyses of revealed comparative advantages provides the basis for this research. The original index of revealed comparative advantage was first published by Balassa (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. 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 especially criticised because it is seen as neglecting the different effects of agricultural policies and asymmetric values. Vollrath (1991) suggested three different specifications of revealed comparative advantages in order to eliminate these problems: relative trade advantage index (RTA), logarithm of relative export advantage (ln*RXA*) and relative competitiveness (RC). 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:

$$RTA_{ij} = RXA_{ij} - RMA_{ij} \quad (2)$$

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

$$RTA_{ij} = [(x_{ij}/x_{it})/(x_{nj}/x_{nt})] - [(m_{ij}/m_{it})/(m_{nj}/m_{nt})] \quad (3)$$

If $RTA > 0$, this reveals that a given country has a comparative advantage compared to focus countries or, in contrast, a revealed comparative disadvantage. Vollrath's second index is the logarithm of relative export advantages ($\ln RXA$), while his third index is called revealed competitiveness (RC), which is the difference between the logarithm of relative export advantages and that of relative import advantages:

$$RC_{ij} = \ln RXA_{ij} - \ln RMA_{ij} \quad (4)$$

Positive $\ln RXA$ and RC indicate a competitive advantage, while negative values indicate competitive disadvantage.

The literature interlinks the model of revealed comparative advantages with new streams of trade theories. This approach stresses that price and quality competition in two-way trade is worth separating. To achieve this goal, the literature introduces a new concept: unit value difference (UVD), which is the difference between export and import unit values, defined as follows:

$$UV_{ij}^x = X_{ij}/Q_{ij}^x \text{ and } UV_{ij}^m = M_{ij}/Q_{ij}^m \text{ so } UVD_{ij}^m = UV_{ij}^x/UV_{ij}^m \quad (5)$$

where X stands for export, M indicates import, Q stand for quality, i means a given country and j is for a product. Equation (5) means that the difference of a product group's unit value (UVD) can be defined if import unit value (UV_{ij}^m) is deducted from export unit value (UV_{ij}^x); that is, export value achieved from a country's given product group (X_{ij}) is divided by export quantity (Q_{ij}^x), then divide import value (M_{ij}) by import quantity (Q_{ij}^m) 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 four categories in order to separate price-quality competition (GP-index on the basis of Gehlhar and Pick, 2002). These categories implicitly refer to two-way and not to one-way trade and are well able to separate the competitive positions of a country's product groups with regard to price and quality:

- 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 $UVD_{ij} < 0$.

In order to calculate these various indices, we used the Eurostat trade database with eight digit breakdown (CN8), resulting in five products (indicated by 'j' in the equations above) for spirits distilled from fruits (Appendix 2). Data are then aggregated to two digit breakdown in order to identify the positions of fruit spirits in the *beverages, spirits and vinegar* sector (indicated by 't' in equations). We used trade data from 2001-2011, providing a clear basis for analysing the effects of EU accession. In this context, the EU is defined as the Member States of the EU-15. Owing to the lack of trade data in the spirit category for many newly accessed Member States, the results from six CEECs (Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovenia) are analysed.

Results

Trends in fruit spirits trade

Significant changes have occurred in the CEEC fruit spirits trade with the EU-15 following EU enlargement (Figure 1). Although some Member States (Bulgaria, Czech Republic and Romania) reached a positive trade balance in some years after 2003, fruit spirits imports exceeded exports in most cases, resulting in a trade deficit. The Czech Republic shows a mixed performance with large fluctuations between years. We may conclude that EU accession resulted in an increased trade deficit in fruit spirits in most CEECs.

These changes are in line with the overall trend of an increasing trade deficit in the beverages, spirits and vinegar market of the six CEECs with the EU-15 since 2003 (Figure 2). Prior to EU enlargement, Bulgaria, the Czech Republic and Hungary had in most years a trade surplus although all countries analysed experienced an increasing trade deficit over time. In most cases the deficit was the biggest in 2008
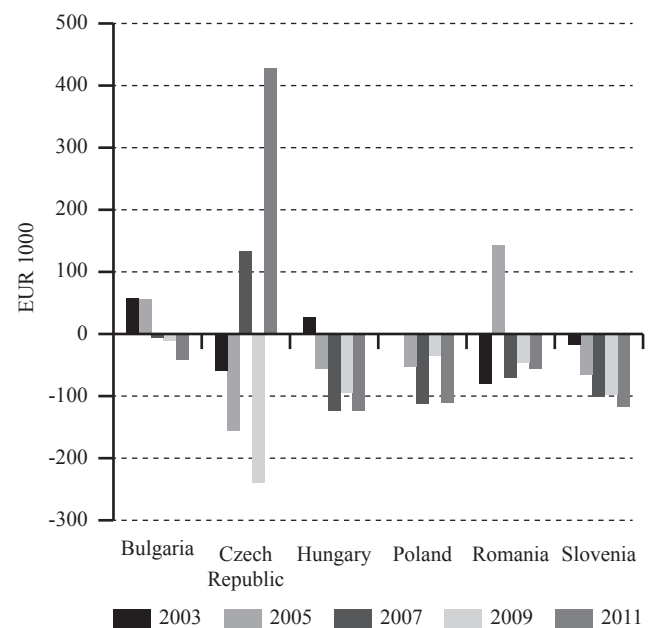

Figure 1: The trade balance in fruit spirits of six Central and Eastern European countries with the EU-15 in the period 2003-2011.

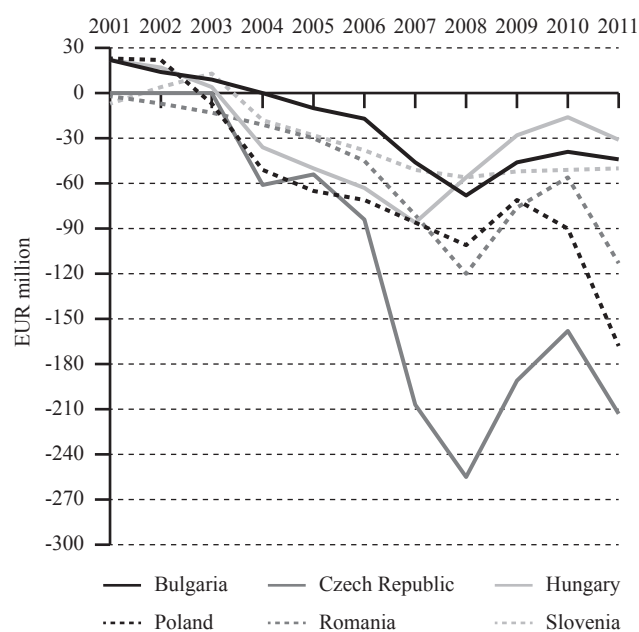Source: authors' own calculations based on Eurostat data

Figure 2: The trade balance in beverages, spirits and vinegar of six Central and Eastern European countries with the EU-15 in the period 2001-2011.

Source: authors' own calculations based on Eurostat data

and the smallest in 2010. By comparing these results with Figure 1, it becomes apparent that the decline in the CEEC fruit spirits trade with the EU-15 following EU enlargement played just a minor role in the overall decrease in the overall beverages, spirits and vinegar trade balance.

When analysing the main EU-15 trading partners in fruit spirits of the six CEECs, a high concentration becomes evident. Three EU-15 Member States account for 90 per cent of the fruit spirits trade of the six CEECs, with Germany being the major trading partner in most cases (Table 1). Concentration has not changed significantly since EU accession.

Competitiveness of the CEEC fruit spirits trade

In the analysis of the competitiveness of the fruit spirits trade of the six CEECs with the EU-15, all four Balassa-indices show similar results for each country. In general, all countries except Hungary and Poland (the latter not having a PGI fruit spirit) had a revealed comparative advantage and all were competitive in the EU-15 beverages market in the period 2001-2011 (Table 2). Standard deviations are normal (except for Romania in some cases), indicating only small changes between years. However, in addition to the overall picture, it is evident that the values for Hungary and Poland are fundamentally lower than those for other countries analysed, indicating that individual country performances differed significantly.

An analysis of price and quality competition over time shows similar results. Two-way fruit spirits trade with the EU-15 – which was decisive in the period analysed – was ultimately unsuccessful in terms of quality and price (Table 3). It is apparent that a growing number of fruit spirits became unsuccessful with respect to price and quality competition following EU accession, while the share of successful competition has been diminishing over time. One-way trade in some years was caused by the lack of exports from some of the CEECs.

As to analysis by country, Bulgaria and Czech Republic show signs of successful price and quality competition, in many cases, while other countries analysed can, in the majority of the cases, be characterised by unsuccessful price and quality competition (Table 4). Compared to 2001, when fruit spirits in three of the six countries were competitive in the EU-15 beverages markets, all products except for those coming from the Czech Republic had become uncompetitive by 2011. Slovenia is a good example of having a PGI product and being uncompetitive in both quality and price terms, while the Czech Republic is an exception as it does not possess any PGI fruit spirits but is competitive in some years.

Table 1: Concentration by country of the fruit spirits trade of six Central and Eastern European countries with the EU-15 in 2003 and 2011 (per cent).

Exports				Imports			
2003		2011		2003		2011	
Country	Share	Country	Share	Country	Share	Country	Share
Germany	60	Austria	53	Germany	50	Germany	60
Austria	19	Italy	29	Spain	28	Italy	24
Italy	17	Germany	11	Italy	18	France	6

Source: authors' own calculations based on Eurostat data

Table 2: Revealed comparative advantage of fruit spirits of six Central and Eastern European countries in the EU-15 beverages market, 2001-2011.

Denomination	Average, 2001-2011				Standard deviation, 2001-2011			
	B	RTA	lnRXA	RC	B	RTA	lnRXA	RC
Revealed comparative advantage, if:	> 1	> 0	> 0	> 0				
Bulgaria	2.84	2.64	0.52	2.39	2.64	2.61	1.25	1.55
Czech Republic	5.32	4.52	1.27	2.00	4.77	4.57	0.99	1.09
Hungary	0.52	0.15	-0.98	0.06	0.46	0.73	0.87	1.82
Poland	0.09	-0.04	-3.75	-1.56	0.15	0.18	1.89	2.14
Romania	6.08	5.43	0.38	1.16	12.39	12.22	1.85	1.41
Slovenia	3.20	2.40	0.52	0.84	2.69	2.52	1.59	1.60

Source: authors' own calculations based on Eurostat data

Table 3: Fruit spirit trade between six Central and Eastern European countries and the EU-15 with regard to price and quality competition, 2001-2011.

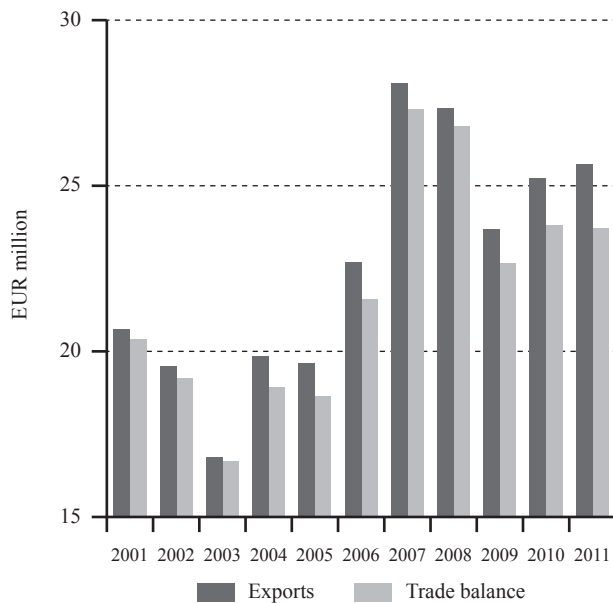| Percentage (%)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
One-way trade	0.00	0.09	0.09	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00
Two-way trade	1.00	0.91	0.91	1.00	1.00	0.82	1.00	1.00	1.00	1.00	1.00
Category A: successful price competition	0.40	0.25	0.25	0.33	0.33	0.00	0.00	0.20	0.00	0.33	0.00
Category B: unsuccessful price competition	0.20	0.25	0.25	0.00	0.33	0.33	0.60	0.40	0.50	0.17	0.33
Category C: successful quality competition	0.20	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
Category D: unsuccessful quality competition	0.20	0.25	0.50	0.67	0.33	0.67	0.40	0.40	0.50	0.50	0.50

Source: authors' own calculations based on Eurostat data

Table 4: GP-indices in the fruit spirits trade of six Central and Eastern European countries.*

GP-index	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bulgaria	D	D	A	A	A	B	D	A	D	A	D
Czech Republic	A	A	D	D	B	-	-	-	B	A	C
Hungary	C	-	-	A	B	-	B	B	D	B	B
Poland	-	-	-	D	D	-	B	D	B	D	D
Romania	B	C	B	D	A	D	B	B	B	D	B
Slovenia	A	B	D	D	D	D	D	D	D	D	D

* A = successful price competition, B = unsuccessful price competition, C = successful quality competition, D = unsuccessful quality competition
Source: authors' own calculations based on Eurostat data

Figure 3: Italian grappa exports to, and trade balance with, the EU-15.
Source: authors' own calculations based on Eurostat data

Table 5: Revealed comparative advantage and GP-indices of Italian grappa in the EU-15 beverages market, 2001-2011.

	Denomination				
	B	RTA	lnRXA	RC	GP-index*
2001	13.02	0.27	2.57	0.02	A
2002	12.61	-2.06	2.53	-0.15	A
2003	10.15	-3.89	2.32	-0.32	C
2004	10.03	-59.08	2.31	-1.93	C
2005	11.15	-71.61	2.41	-2.00	C
2006	12.98	-52.04	2.56	-1.61	C
2007	13.83	-18.23	2.63	-0.84	C
2008	13.29	-8.38	2.59	-0.49	C
2009	11.68	-36.46	2.46	-1.42	C
2010	12.51	-52.58	2.53	-1.65	C
2011	13.28	-46.49	2.59	-1.50	C
Average	12.23	-31.87	2.50	-1.08	n.a.
Standard deviation	1.30	26.14	0.11	0.74	n.a.

* for the interpretation of the GP-index, see Table 3
Source: authors' own calculations based on Eurostat data

Competitiveness of grappa: the Italian case

It can be asked how these results compare with those of a well-known PGI fruit spirit produced in an EU-15 Member State (Appendix 3). Is the competitiveness of all fruit spirits negative in Europe or there are exceptions? As an illustrative example, the Italian grappa was selected and its competitiveness was tested by the same indicators. The trade balance of grappa with EU-15 markets was significantly positive (EUR 16-28 million in 2001-2011), in contrast to CEEC fruit spirits (Figure 3). Moreover, the Italian grappa trade balance shows an increasing trend, rising from EUR 20 million in 2001 to EUR 24 million in 2011.

The Italian grappa is more competitive than the CEEC fruit spirits in the EU-15 beverages market and is also competitive in terms of price and quality (Table 5). It had a revealed comparative advantage in all years analysed by the B and lnRXA index, while RTA and RC indices were negative in most cases. A comparison of these results with those of the CEEC fruit spirits suggests that export-based indices for grappa are higher, although import-based ones are lower, which might simply result from the fact that imports are more likely to be influenced by policy interventions. Standard deviations were relatively low for grappa except for the RTA index, indicating slight changes between years in values of respective indices.

However, the GP-index of the Italian grappa is much more favourable than that of the CEEC fruit spirits: in 2001 and 2002 grappa was price competitive, while from 2003 to 2011 grappa was successful in quality competition. This suggests that the positive trade balance of the Italian grappa in the EU-15 was associated with high prices for exports and low prices for imports. The results clearly indicate that the Italian grappa outperforms the CEEC fruit spirits in competitiveness in the EU-15 beverages market although both have a PGI in their labels.

Discussion

Our analyses reveal some clear trends in the fruit spirits trade with the EU-15 of the six CEECs. Firstly, it is observable that the CEECs imported more beverages and fruit spirits than they exported, resulting in a negative trade balance. Secondly, in the vast majority of cases the CEEC fruit spirits experienced unsuccessful price and quality competition after EU enlargement, meaning that the CEECs exported fruit spirits at a reasonably low price, and imported them at a high price. Consequently, the perceived quality of fruit spirits was not in line with their prices. What is the background to these changes?

First of all, the opening of national agri-food markets to EU competition has led to a marked increase in regional imports of high value-added and price-competitive processed products, while exports continue to be the more easily substitutable bulk agri-food products. Processed products from the EU-15 are much more price competitive in the national market than are regional raw materials in EU-15 markets (Jámbor and Hubbard, 2012).

Another important factor has been the tough adjustment to new market conditions. EU membership has made the CEECs part of a large, competitive market. On the one hand, this market offers tremendous opportunities for their agricultural sectors; on the other hand, they are faced with significantly increased competition in their domestic markets and the trade figures indicate a rather limited ability so far to withstand these competitive pressures (Csáki and Jámbor, 2010). The subsidy policy of competitors is also important as a cause. The traditionally high agricultural subsidies of the EU-15 have distorted the competitiveness of agri-food products imported by the region after EU accession.

Meeting future challenges requires that this situation be acknowledged within agricultural policy making, respecting the production of unique national/regional products. Targeted policies for PGI/PDO producers are needed such as the protection of the name of the produce, the enhancement of proper marketing strategies and the enhancement of competitiveness of PGI/PDO producers. It is of utmost importance to retain the original name of PDO products but this is often not a simple procedure. In the case of *feta* cheese, for instance, it took a long legal process until Greece secured the exclusive right to produce this well known product; while Germany, France and Denmark were able to manufacture it only using different denominations. The issue regarding the *Tokaj* PDO wine is still on the agenda between Hungary and Slovakia; so far there is no agreement on the usage of this denomination.

It is clear that PDO products are seen as having a relevant business value. Several researchers have shown that European consumers are becoming aware of the geographical indication system and are familiar with the logos but the main concept (high quality based on origin) is still very unclear even in Southern Europe where geographical indication products such as grappa look back on a long tradition (Bureau and Valeschini, 2003). The introduction of a common European logo for wines and alcoholic drinks may help consumers to recognise the special characteristics of these high quality products which would be realised in higher prices, and thus be beneficial for the whole sector (Belletti *et al.*, 2007).

But the most important question is how to improve the trade balance of the CEEC PGI fruit spirits with the EU-15. This issue is a complex one that raises many other questions for economists working in different areas (marketing, agriculture, food etc.) Further research is needed to better understand the patterns behind these changes and to create a long-term strategy for the sector. However, the problem is not unsolvable as the Italian example indicates.

Conclusions

This paper has analysed the competitiveness of products with PDO as realised through the fruit spirit trade of six CEECs with the EU-15 beverages markets and has drawn a number of conclusions. Firstly, the majority of the studied CEEC fruit spirits was both competitive and had a comparative advantage in the EU-15 beverages market in the period 2001-2011, although the competitive positions have continuously declined since EU accession. Secondly, the analysis suggests that two-way fruit spirit trade with the EU-15 was ultimately unsuccessful in quality and in terms of price, although there are significant differences in the performances of individual countries. Thirdly, the results show that the CEEC are losing market positions in their traditional fruits spirit sector in the EU-15 beverages market in spite of the fact that the majority of these products have a geographical indication. Fourthly, the comparison of the competitiveness of the CEEC fruit spirits with the Italian grappa indicate that the latter outperforms CEEC fruit spirits in competitiveness in the EU-15 beverages market, although both have a PGI in their labels. Further research is needed to understand trade patterns in the CEEC region and to find out how to improve the competitiveness of CEEC fruit spirits in the EU-15 markets.

Acknowledgements

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Appendix 1: Spirits distilled from fruits with PGI status in four Central and Eastern European countries, and the year in which PGI status was awarded.

Spirit	Country of origin	Spirit	Country of origin
Szatmári szilvapálinka (2003)	Hungary	Ţuică Zetea de Medieşu Aurit (2005)	Romania
Kecskeméti barackpálinka (2003)	Hungary	Ţuică de Valea Milcovului (2005)	Romania
Békési szilvapálinka (2003)	Hungary	Ţuică de Buzău (2005)	Romania
Szabolcsi almapálinka (2003)	Hungary	Ţuică de Argeş (2005)	Romania
Gönci barackpálinka (2008)	Hungary	Ţuică de Zalău (2005)	Romania
Pálinka (2008)	Hungary	Ţuică Ardelenească de Bistriţa (2005)	Romania
Bošácka slivovica (2003)	Slovakia	Horincă de Maramureş (2005)	Romania
Brinjevec (2008)	Slovenia	Horincă de Cămârzana (2005)	Romania
Doljenski Sadjevec (2008)	Slovenia	Horincă de Seini (2005)	Romania
Slivova rakya from Troyan (2005)	Bulgaria	Horincă de Chioar (2005)	Romania
Kaysieva rakya from Silistra (2005)	Bulgaria	Horincă de Lăpuş (2005)	Romania
Kaysieva rakya from Tervel (2005)	Bulgaria	Turţ de Oaş (2005)	Romania
Slivova rakya from Lovech (2005)	Bulgaria	Turţ de Maramureş (2005)	Romania
Pălincă (2008)	Romania		

Source: EU (2008)

Appendix 2: The classification of spirits distilled from fruits according to the Eurostat trade database with eight digit breakdown (CN8).

Code	Description
22089033	Plum, pear or cherry spirit, in containers holding <= 2 l
22089038	Plum, pear or cherry spirit, in containers holding > 2 l
22089048	Spirits distilled from fruit, in containers holding <= 2 l (excluding plum, pear or cherry spirit and calvados)
22089051	Spirits distilled from fruit, in containers holding =< 2 l (excluding plum, pear or cherry)
22089071	Spirits distilled from fruit, in containers holding > 2 l (excluding spirits distilled from grape wine or marc, plum, pear or cherry)

Source: Eurostat

Appendix 3: The classification of grappa according to the Eurostat trade database with eight digit breakdown (CN8).

Code	Description
22082026	Grappa, in containers holding <= 2 l
22082086	Grappa, in containers holding > 2 l

Source: Eurostat