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Consumers' and producers' expectations towards geographical indications

Empirical evidence for a German case study

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Abstract

Purpose – This paper's objective is to investigate consumers' and producers' expectations towards geographical indications (GIs) in a German context, where this certification scheme has not been widely used so far.

Design/methodology/approach – Data for the consumer side were obtained by a structured questionnaire. A total of 741 consumers were asked online with respect to their knowledge and expectations towards geographical indications in general and Hessian apple wine in particular. The collected data were analysed by an explorative factor analysis and a binary logit model. Additionally, data for the producer side were collected via an in-depth interview with one major producer of Hessian apple wine.

Findings – The consumer side results indicate that Hessian consumers' awareness and knowledge about GIs is very limited. Moreover, it is found that the quality warranty dimension is not as important as the economic support dimension and perceived authenticity of the product. A hypothetical willingness to pay for protection is mainly driven by consumer perceptions and expectations towards the positive impacts of geographical indications on the local economy. The producer side results highlight that the most important motivation to apply for a protected GI (PGI) is to secure the established reputation against misuse by competing producers in order to ensure the quality level of Hessian apple wine.

Practical implications – The findings indicate that a PGI is by no means a self-runner. The positive impacts of this certification scheme have to be communicated to consumers in order to be successful.

Originality/value – Empirical evidence regarding consumers' knowledge and expectations towards geographical indications in a non-Mediterranean context is limited. The present paper contributes to the existing literature by providing empirical evidence for a German case study.

Keywords Geographical indications, Cider, Germany, Consumer perceptions, Marketing strategy

Paper type Research paper

Introduction

In recent years a steadily increasing demand for regional and local foods can be observed worldwide. From the consumers' point-of-view, this growing demand for local and regional foods can be considered a countertrend against the globalisation of trade in foods with international brands and converging demand patterns (Parrott *et al.*, 2002). A growing consumer segment is concerned about food safety and food quality issues and values the origin as a useful quality cue. These ongoing developments are reflected in the growing number of products registered under regulation EC No. 510/2006 and the efforts at national and international level to foster the registration of products either as a protected geographical indication (PGI) or a protected



designation of origin (PDO)[1]. This is also true for Germany, where this certification scheme has not been widely-used so far. However, several attempts have been made to promote this scheme and to encourage German producers to apply for the EU-wide protection. Some prominent examples of German PDO/PGI products are Schwarzwäelder Schinken (PGI since 1997) and Spreewäelder Gurken (PGI since 1999).

Most scientific studies on geographical indications (GIs) have been carried out in a Mediterranean context, since origin labelling has got a long tradition in countries such as France, Italy and Greece (e.g. Loureiro and McCluskey, 2000; Scarpa *et al.*, 2005). Contrarily, empirical evidence with respect to the use of PDO and PGI in a non-Mediterranean context is limited due to the rather low number of registered products originating in non-Mediterranean countries. This has changed to some extent in recent years. A growing number of agricultural producers from non-Mediterranean countries apply for registration of their products under regulation EC No. 510/2006 (Becker, 2009). However, the majority of products registered either as PDO or PGI still originate in Mediterranean countries. Becker (2009) explains this north-south divide by different policy approaches towards enhancing food quality. Whereas in Mediterranean countries the *terroir* concept is well-established and used extensively by agricultural producers, northern European countries have focused on other food quality assurance schemes (FQASs) and organic production instead. A similar reasoning is put forward by Parrott *et al.* (2002). They argue that the apparent differences between “northern” and “southern” European countries in terms of PDO/PGI-use result from notable differences in their food culture and agricultural systems. They characterize the “northern” culture as functional and commodity-driven, whereas the “southern” one is based on locality and artisanal production.

Given this background, studies investigating the establishment of geographical indications in non-Mediterranean parts of Europe are rare. Detailed knowledge about consumers’ attitudes and producers’ expectations towards this certification scheme is particularly limited for German consumers and producers. The present paper wants to fill this research gap by presenting empirical results for a German case study, Hessian apple wine.

Two main objectives are pursued. First, the paper addresses the awareness and perceptions of, and attitudes towards the PDO and PGI labels among Hessian consumers. This is of considerable importance, if producers want to use these labels as a successful marketing tool. Second, the paper investigates consumers’ attitudes towards the product Hessian apple wine and the evaluation of a regional certification label for this specific product. Additionally, the supply side will be briefly explored by presenting findings concerning producers’ motivation to apply for registration of the term “Hessischer Apfelwein” as a PGI. The expectations driving the decision to apply for a registration under regulation EC No. 510/2006 as well as possible obstacles the producer group faced during the application process shall be identified. Possible obstacles can be endogenous such as conflicts finding a consensus on the product specification or exogenous such as administrative burdens.

The paper is structured as follows. The next section highlights the main features of the cider and apple wine industry. Thereafter, a brief overview about previous empirical studies in the context of PDO and PGI products is provided, followed by a

The cider market

As in the case of wine, taste, appearance and alcohol content of cider varies across countries and regions[2]. The French cider is known for its relatively low alcohol content (3 per cent by volume), whereas the British or Irish cider normally has got an alcohol content of over 10 per cent by volume. The UK and Ireland are the main producing and consuming countries of cider. Other countries with a tradition of producing cider and possessing an established cider industry are Belgium, Finland, France, Germany and Spain. The per-capita consumption of cider across countries is presented in Figure 1.

The highest per-capita consumption of cider can be found in Ireland, the UK, and Finland with 17, 13.3 and 11 litres per annum, respectively. In all other countries, the consumption is rather low (i.e. beneath 5 litres per year). For comparison Figure 1 does also present the per-capita consumption of beer and wine.

Although the cider market is much smaller than the beer and wine market, it has experienced the highest growth rates among alcoholic beverages in some European countries in recent years. One example is the UK, where sales of cider grew by 23 per cent in 2006. According to the National Association of Cider Makers (NACM), cider is abandoning its “cheap alcohol” image and a growing share of consumers perceives cider as a quality drink (National Association of Cider Makers, 2009). A renewed interest in cider can also be observed in other European countries with a long history of cider production and consumption such as Brittany and Normandy in France and

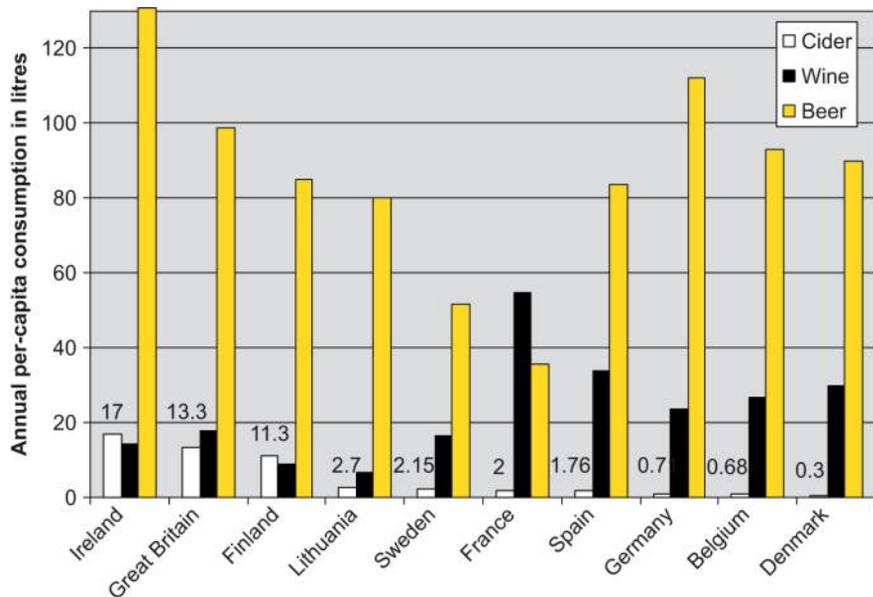


Figure 1. Annual per-capita consumption of cider, wine and beer in selected European countries, 2004 and 2005

Source: Own presentation based on data from the VdFw, Deutsches Weininstitut and FAOStat

Northern Spain (Rowles, 2000). In these areas, cider is a central element in the local culture and most often touristic concepts are based on the local cider industry.

Moreover, the growing consumer interest in product attributes such as origin, sustainability, traceability and authenticity has fuelled the demand for regional foods and regional specialties[3]. The product cider seems to be well-suited for such a setting due to its long history and the large variety of different ciders reflecting regional differences in climate, apple varieties and local production techniques. This association between provenance and quality is sometimes denoted *terroir*. The French term *terroir* means that there is a certain link between the context of production (i.e. climate, soil, culture, tradition, local knowledge) and the quality of the produced product (Parrott *et al.*, 2002). Such a quality-origin link is a necessary condition for a product to become protected under regulation EC No. 510/2006. The increasing interest in protecting cultural heritage and promoting authentic products is possibly the underlying reason for the growing number of ciders registered either as PGI or PDO. Table I presents an overview of all currently protected ciders in Europe.

In Germany, the production and consumption of apple wine is concentrated in a few regions, namely Hesse, Bavaria, Rhineland-Palatinate and Baden-Wuerttemberg. Hesse, particularly the region around Frankfurt, is the leading producing and consuming region. In the year 2008, the production was 37 million litres, which represent around 85 per cent of total apple wine production in Germany[4]. Around 50 companies produce cider in Hesse, with the major share being small-scale producers selling their cider only locally[5]. The per-capita consumption in Hesse was six litres in 2008, ten times the average German per-capita consumption of 0.6 litre (*ibidem*). Of great importance is the out-of-home consumption, with only one fourth of total consumption taking place at home (Herrmann and Oberbeck, 2008).

Hessian apple wine has a long history and has been in the marketplace for decades. However, due to the steadily declining consumption in the 1990s, new ways to stimulate demand had to be found. Herrmann and Schulz (2006) analysed the Hessian apple wine market with the main objective to identify the underlying reasons for the steadily declining consumption of apple wine in Hesse in order to provide strategies for the Hessian apple wine producer association to overcome this declining trend. The results from an online-survey of 1,000 Hessian consumers conducted in 2006 highlighted that the group of regular apple wine consumers is quite satisfied with the current product. For these consumers the attributes “authenticity” and “tradition” are of great importance. They prefer a dry apple wine that is produced traditionally, which

Country	Protected product	PDO/PGI	Registered since
France	Cournaille	PDO	1999
France	Pays d'auge/Pays d'auge Cambremer	PDO	1999
France	Cidre de Bretagne	PGI	2000
France	Cidre de Normandie	PGI	2000
Spain	Sidra de Asturias	PDO	2005
UK	Gloucestershire cider	PGI	1996
UK	Herefordshire cider	PGI	1996
UK	Worcestershire cider	PGI	1996

Table I.
Ciders protected under
regulation EC
No. 510/2006, August
2009

Source: Own compilation based on the EU database on PDOs and PGIs

means that it is made of Hessian apples without any additives. The Hessian origin is an important attribute for these consumers. In contrast, non-consumers often cite the harsh and bitter taste as a reason for not drinking apple wine. Thus, this consumer group, comprising mainly younger and female consumers, should be attracted by sweeter apple wine and apple wine mixed with lemonade. Several apple wine companies launched such products in recent years.

The apples used for making Hessian apple wine typically originate from so-called Streuobstwiesen. This is a traditional type of extensive grassland-orchard management system present in middle Europe. Streuobstwiesen are species-rich and offer a large biodiversity. However, this habitat is nowadays endangered and its protection is part of political and private initiatives in Germany (Suske, 2001).

The role of geographical indications in the supply chain

PDO and PGI products from a producer's point-of-view

Geographical indications like trademarks are distinctive signs that enable producers to secure their established reputation against imitation and fraud. However, trademarks are individually owned rights whilst geographical indications can be considered as club goods (Josling, 2006). The clubs owing these rights are typically producer groups or vertically integrated producer-processing associations. According to this club good nature of a PDO/PGI, Belletti *et al.* (2009) conclude that the protection of a PDO/PGI can reinforce the collective action among the participating producers.

One of the earliest studies analysing the adoption of GIs in a non-Mediterranean country is the one by Ilbery and Kneafsey (2000a) for the UK. In order to find out who applied for a PDO/PGI and why, a brief postal questionnaire was sent to 22 registered producer groups in the UK. The results point out that there is no clear pattern in terms of business type and structure among the applicants. Moreover, the PDO/PGI producer groups exhibit a large heterogeneity. With respect to the reasons for application the answers suggest that the early adopters have sought PDO/PGI status primarily to protect their named products against usurpation. The motivation to use the PDO/PGI logo as a marketing tool was not important at all. Only two of the respondents used the logo at that time on their products. Among the respondents was also one apple cider producer group, the Cider and Perry Makers. This producer group producing Gloucestershire apple cider stated that there were rumours that French cider makers wanted to enter the UK market with UK-style ciders. Consequently, cider producers in the UK applied for the protection as a PGI, because they were afraid to lose market shares if French producers were able to enter the expanding UK market with UK-style ciders. These findings are in line with the other investigated producer groups in the UK leading to the conclusion that in these cases the PDO/PGI certification scheme is primarily a mechanism to protect national producer interests rather than a marketing tool (Ilbery and Kneafsey, 2000a).

Dimara *et al.* (2004) draw a similar conclusion. They argue that regional denomination certification can be considered either as a promotion or as a protection strategy from the producers' point-of-view. In the latter case applying for registration pursues the objectives to protect an established reputation and raise barriers to entry. In the former case certification is considered a useful marketing instrument to create niche markets. The empirical analysis focused on black currant producers in Greece, who had applied for PDO status at the time the survey was carried out. The results

suggest that for most producers PDO certification is not evaluated as an important marketing indicator but as a protection strategy raising barriers to entry.

PDO and PGI products from a consumer's point-of-view

Consumer studies dealing with PDO and PGI labels typically investigate the awareness and knowledge of these labels as well as consumers' perceptions and attitudes towards products carrying such a regional certification label.

The most comprehensive study with respect to consumers' appreciation and attitudes towards PDO/PGI-labelled products was conducted by Van Ittersum *et al.* (2007). In their proposed and tested model on consumers' product evaluation of protected regional products two different effects are distinguished, the effect of the region-of-origin cue and the effect of the certification label itself. The region-of-origin cue is assumed to influence consumers' attitudes towards the protected regional product through the perceived quality. The regional certification label, which guarantees that the product is the authentic product and not an imitation, is supposed to influence consumers in their purchasing behaviour through two different dimensions. The first one is the quality warranty dimension, which represents consumers' belief about the ability of the label to guarantee a higher quality level. The second dimension is the economic support dimension, which captures consumers' beliefs about the way and degree the label can support the economy in that region (Van der Lans *et al.*, 2001; Van Ittersum *et al.*, 2007). The first dimension is assumed to be relevant for all consumers of the product, whereas the second dimension is supposed to be of particular relevance for consumers located inside the production area. The model was tested based on survey data for six different PDO/PGI products from three different European countries, namely Italy, Greece and The Netherlands. The empirical results highlight that consumers have a favourable image of regional certification labels and that this image can be represented by the proposed two-dimensional construct consisting of a quality warranty and an economic support dimension. The results reveal further that the perceived higher quality of these products is the most important determinant of consumers' willingness to buy and willingness to pay for protected regional products. Moreover, Van der Lans *et al.* (2001) point out that the success of a marketing strategy based on the region of origin crucially depends on consumers' awareness and favourable image of the region. These findings are fully in line with findings from the country of origin and branding literature (Kotler and Gertner, 2004; Verlegh and Steenkamp, 1999). Accordingly, a marketing strategy based on regional certification labels resembles a branding strategy in many aspects, particularly in terms of reputation-building and promotional activities.

Another relevant study for our analysis is the one by Carpenter and Larceneux (2008). They tried to explore the decision-making process of consumers when faced with products carrying different value-based labels. Their experimental framework enabled them to compare the impact of a PGI label, when explained, to a PGI label not explained, a local terroir label and no label at all. The experiment was carried out with French consumers and two products, chicken and *foie gras*. The results highlight that the PGI label without additional information has got no positive impact on perceived quality of the product. However, if the PGI label is explained, it influences the quality perception and purchase intention positively.

It can be summarised that the empirical evidence so far suggests that the most important factor determining the success of a PDO/PGI product is the perceived higher quality compared with non-protected products. In this context it must be stressed that quality is a social construct and may vary for specific products and between individuals (Ilbery and Kneafsey, 2000b). Moreover, quality in relation to regionally denominated foods is closely related to other socially constructed concepts such as “authenticity”, “healthy” and “tradition”. This notion is important in that respect, that if regionally denominated products are perceived as being of a higher quality, this higher quality can comprise many different aspects.

Empirical results

Producers' motivation and expectations

The Hessian apple wine producer association submitted the application for a registration of the term “Hessischer Apfelwein” as a protected geographical indication to the German Patent and Trade Mark Office (DPMA) in spring 2006. In August 2007, it was forwarded to the European Commission, where it is still under consideration.

In November 2008, an in-depth interview with one of the leading producers of Hessian apple wine and member of the Hessian apple wine producer association was conducted. The main research hypothesis to be tested is based on results from previous studies on the Hessian apple wine market (Herrmann and Schulz, 2006; Kubitzki and Schulz, 2007). These studies proposed using the protection of the region of origin as a marketing tool in order to stop the declining apple wine consumption in Hesse. Hence, it is hypothesised that the main motivation of Hessian apple wine producers to apply for a PGI is to use this label as a marketing tool, i.e. they primarily want to pursue a promotion instead of a protection strategy.

The Hessian apple wine producer association was founded in 1948 with the aim to represent the interests of Hessian apple wine producers in public. Hence, co-operation and bundling of interests has got a long history in the Hessian apple wine industry. This is very contrary to the case of Herefordshire, Worcestershire and Gloucestershire Cider analysed by Ilbery and Kneafsey (2000a), where a producer association was newly-founded in order to submit an application for a PGI. However, the main motivation to apply for EU-wide registration is the same in both cases. Both producer groups want to achieve protection against free-riders and imitations. The Hessian apple wine producer association considers the EU-wide registration as an important tool in securing the quality level of Hessian apple wine. In this regard the protection shall secure the recent price level and prevent price erosion due to copycat products with lower quality in the market. Moreover, the Hessian apple wine producers have got the feeling that this type of certification is somehow demanded by retailers due to a growing focus on labels and certification schemes. These results are in contrast to the hypothesis stated above that the application for protection is driven by the aim to use the EU-wide protection as an active marketing tool both in the domestic as well as in foreign markets.

Another question addressed was the decision to apply for a PGI instead of a PDO. There was no discussion on this topic among the Hessian apple wine producers, since the restriction to use only Hessian apples in the case of a PDO application would impose severe difficulties. Thus, the general consensus was to apply for a PGI with the specification to use, if possible, 100 per cent Hessian apples from Streuobstwiesen. This

leads to the aspect of product specification. This is of great importance, because the product specification is the determining factor in obtaining registration (London Economics, 2008). Within the product specification, the documentation of an existing link between the product's quality or at least one characteristic and the defined geographical region is the most important part. According to the interview results, the product specification caused no problems among producers and was agreed by all participants very quickly. This can certainly be due to the long history of producing apple wine. Hence, it seems to be that endogenous obstacles were not of any importance in the application process. The same seems to be true for exogenous obstacles. No major difficulties were faced during the application process and the direct costs (e.g. application fees), were very low. This is also true for indirect costs, that is costs arising from restrictions on certain agricultural or processing practices. These costs that are often cited to be of significance in the context of geographical indications seem to be of low importance in the case of Hessian apple wine. One possible explanation is that the established way of production is the basis for the product specification.

Consumers' awareness, perceptions and attitudes towards the EU protection

At the same time the in-depth interview was carried out, an online survey with 741 Hessian consumers was conducted. The sample is representative for the population of Hesse with respect to sex, age and place of residence in the age group 15-59 years. Older consumers are clearly underrepresented while higher educated people are clearly over-represented. This is a typical bias in online surveys and should always be kept in mind while interpreting the results.

In the first part the survey addressed the level of awareness of the official EU logos (presented in Figure 2) among Hessian consumers and the associations with these labels[6]. The second part contained questions with regard to Hessian apple wine and the possible protection as a PGI. The main results are presented and discussed below.

PDO and PGI labels in general

The awareness of the official EU logos is very low among Hessian consumers. Only 9.6 per cent ($n = 71$) of all respondents claimed to know at least one of the two EU logos. This is in line with a note by the European Economic and Social Committee (EESC) issued in 2008 that the recognition of "European certification schemes and their logos and labels is still inadequate and very patchy". Moreover, due to follow-up questions it turned out that some consumers did confuse the labels with other labels. Hence, the



Figure 2.
EU Logos PGI and PDO

share of consumers knowing this certification scheme and the associated labels is even overstated with 9.6 per cent.

It was investigated whether there are significant differences between consumers claiming to know at least one label and consumers not being aware of the labels ($p < 0.05$). No significant differences between these two groups were found with respect to sex, income, and household size. However, significant differences could be identified in terms of education level and age. Higher educated respondents and respondents under the age of 30 are more likely to know the labels. A significant difference was also found with respect to organic shopping behaviour. People stating to buy regularly organic products have got a significant higher awareness of the PDO/PGI label than people who buy organic products rarely or never. This can be explained by the fact that people who buy regularly organic foods are most often more interested in the foods they purchase and, hence, are generally better informed than non-organic buyers.

Of great interest is the signal effect of a label, i.e. what is transmitted by the label to the consumer. This question was investigated for consumers claiming to know at least one of the labels and consumers not being aware of these labels separately. One striking result is that among consumers declaring to have seen one of the logos before, nearly 40 per cent did not state any association with the labels. This does reflect the wide-spread lack of knowledge among Hessian consumers what these labels stand for. Among the stated associations, the statements “the label secures that the origin is the true origin”, “the product is the original one”, “the product is a high-quality product” and “the product is controlled” were mentioned most frequently. This group was also questioned closed-ended with respect to their expectations towards products protected either as PDO or PGI. The results are presented in Figure 3.

Consumers’ agreement respectively disagreement to the presented statements was measured on a five-point Likert scale ranging from “1 = I totally disagree” to “5 = I totally agree” with an additional “I don’t know”-option. Over 70 per cent of the respondents agree that geographical indications support local producers and secure

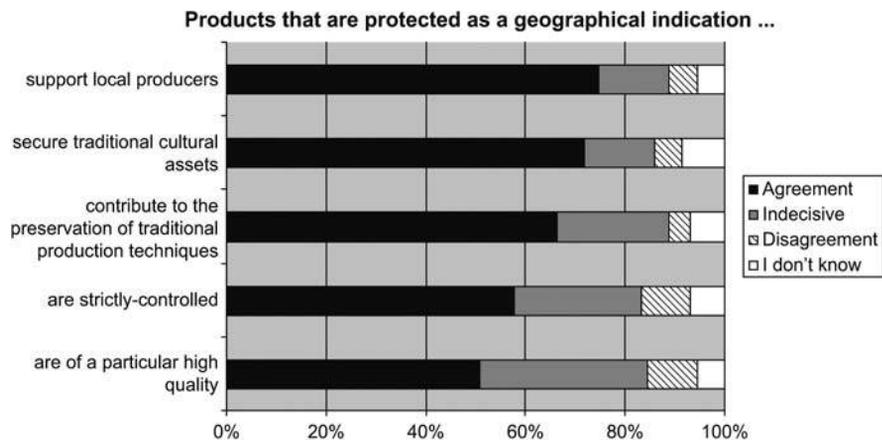


Figure 3.
Expectations towards
PDO and PGI products

Note: $n = 71$

Source: Own presentation

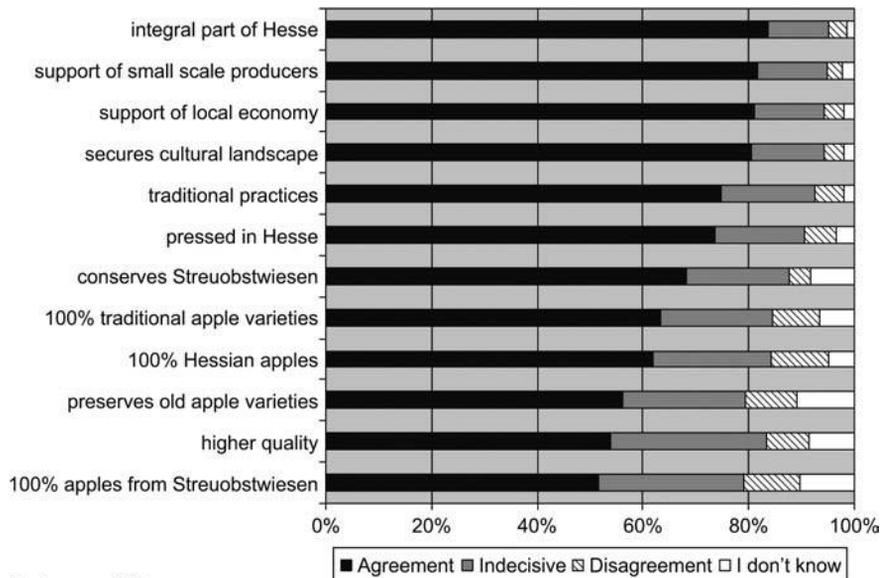
traditional cultural assets. On the other hand, the share of respondents associating tight controls and a particular high quality with geographical indications is 57.7 and 50.7 per cent, respectively. For these two statements the share of respondents being indecisive was highest with 25.4 and 33.8 per cent, respectively. It seems to be the case that geographical indications are tightly connected with protecting tradition and supporting the local economy, whereas around 50 per cent are not convinced that these products possess a particularly high quality. This is an important finding given the results from previous consumer studies presented above that in most cases the higher perceived quality of protected products determines the preference and WTP for these products.

Hessian apple wine and the protection as PGI

After this general part on the EU Certification labels, the second part addressed specifically Hessian apple wine. Based on their consumption frequency the respondents were classified in consumers and non-consumers.

A total of 42 per cent of respondents state to drink apple wine at no time. These consumers constitute the group of non-consumers. All other respondents comprise the group of consumers. All respondents were asked to state their associations with Hessian apple wine open-ended and closed-ended. The results for the closed-ended statements for the consumer group are presented in Figure 4 (see Table II for a complete statements list plus codes).

Figure 4 points out that the highest share of agreement can be found for statements that are related to constructs of culture, economic support and the use of traditional processing methods. The lowest degree of agreement is present for statements related to higher quality and raw material specifications such as the exclusive use of Hessian



Note: n = 432

Source: Own presentation

Figure 4. Associations with and expectations towards Hessian apple wine and the protection as geographical indication, apple wine consumers

Construct	Code	Statement
Economic support	Support of local economy	By buying Hessian apple wine I support the local economy
	Support of small-scale producers	Regional specialities contribute to the survival of small-scale producers
Quality and brand affinity	Higher quality	Hessian apple wine is of a higher quality than apple wine from other regions
	Brand affinity	I always buy apple wine from a certain producer
Product and processing specifications	100 per cent Hessian apples	Hessian apple wine must be produced by using exclusively Hessian apples
	100 per cent traditional apple varieties	Hessian apple wine must be produced by using exclusively traditional apple varieties
	100 per cent apples from Streuobstwiesen	Hessian apple wine must be produced by using exclusively apples from Streuobstwiesen
	Pressed in Hesse	Hessian apple wine must be pressed in Hesse
Culture and tradition	Integral part of Hesse	Hessian apple wine is an integral part of Hessian culture
	Traditional practices	Hessian apple wine must be manufactured according to traditional practices
Preservation	Secures Streuobstwiesen	The protection as geographical indication preserves Hessian Streuobstwiesen
	Secures cultural landscape	Regional specialities such as Hessian apple wine contribute to the survival of the domestic cultural landscape
	Preserves old apple varieties	The protection as geographical indication conserves endangered apple varieties

Table II.
Codeplan and detailed statements with respect to Hessian apple wine and the protection as geographical indication

Notes: The agreement to each statement is measured on a five-point Likert scale with 1 = “I don’t agree at all” to 5 = “I totally agree” with an additional “I don’t know” option

Source: Own presentation

apples, traditional apple varieties or apples from Streuobstwiesen. These results suggest that from the consumer point of view, Hessian apple wine is deeply rooted in the local culture and tradition, whereas detailed expectations with respect to the product specification are not very pronounced.

Furthermore, the respondents had to indicate whether they were willing to pay a higher price for a protected apple wine. A total of 48 per cent of consumers stated to be willing to pay a higher price for a protected apple wine. Hence, the question arises which factors may contribute to this hypothetical willingness to pay (WTP) for protection. Therefore, a binary logit model was estimated with the hypothetical WTP as the dependent variable. Such a model permits the examination of the marginal impact of variables on the probability of a positive WTP for protection *ceteris paribus*.

The included explanatory variables comprise socio-demographic variables as well as consumers' attitudes and expectations towards organic products, Hessian apple wine in general and the protection in particular. Before estimating the binary logit model, an explorative factor analysis (EFA) was carried out in order to reduce the large number of statements to a few independent factors that can be incorporated into the model. Several extraction (principal component, maximum likelihood) and rotation (varimax, oblimin) methods were tested, whereby the most reliable solution is a two-factor solution which is presented in Table III. Moreover, Table III presents the factor loadings on each single-item statement, as well as the mean of the single-item statement for the group of consumers stating to have a positive WTP for a protected apple wine and the group stating to have no WTP, separately.

In the binary logit model the dependent variable is a dichotomous variable, whereby in this case the top-two answers, that is "I totally agree" and "I agree" with respect to the statement "I were willing to pay a premium for an apple wine that is protected as a geographical indication", were coded as "1 = WTP for protection" and all other answers as "0 = no WTP for protection".

It is important to note that the variable WTP does only measure a hypothetical WTP, since it is derived from a hypothetical questionnaire. In hypothetical settings, researchers typically worry about two possible biases, the social desirability bias and the hypothetical bias (Lusk and Norwood, 2009; Murphy and Stevens, 2004). The social desirability bias refers to a situation where respondents provide answers they consider as being in line with social norms. This bias is assumed to be more pronounced in face-to-face interviews than in online surveys because of the presence of an interviewer in the former case (Duffy *et al.*, 2005). The hypothetical bias, which refers to a discrepancy between what people say in a hypothetical survey and how they will actually behave in a real purchase situation, typically leads to overstated WTP measures.

Whereas it is assumed that the social desirability bias is not a point of major concern in our setting due to the anonymous online survey structure), the hypothetical

Factors and the associated single-item statements ^a	Factor loading	Mean	
		WTP	No WTP
<i>Factor 1: support dimension (percentage of variation explained: 50.8 per cent)</i>			
Support of small-scale producers	0.874	4.45	4.05
Support of local economy	0.791	4.41	3.91
Secures cultural landscape	0.758	4.44	3.94
<i>Factor 2: processing dimension (percentage of variation explained: 14.8 per cent)</i>			
100 per cent apples from Streuobstwiesen	0.812	3.98	3.30
100 per cent traditional apple varieties	0.732	4.07	3.54
100 per cent Hessian apples	0.711	4.16	3.50
Protection secures old apple varieties	0.705	4.27	3.41
KMO = 0.851 ($p < 0.000$)		$n = 206$	$n = 226$

Notes: ^aThe agreement to each statement is measured on a five-point Likert scale with 1 = "I don't agree at all" to 5 = "I totally agree". The "I don't know" answers were dropped; Results were obtained by using the principal component method with varimax rotation

Source: Own presentation

Table III. Retained factors, single-item statements, factor loads and mean

bias certainly is. In order to take this possible bias into account, the model is specified very carefully by just considering the top-two answers as a hypothetical WTP. Moreover, since the respondents were able to indicate their agreement on a five-point Likert scale with an “I don’t know” option, we are quite confident that the hypothetical bias is reduced compared to the usually applied dichotomous choice. Nevertheless, the hypothetical nature of the setting must be kept in mind when drawing conclusions from the model.

The estimated model is:

$$\text{logit}(p_i) = \ln \left(\frac{p_i}{1 - p_i} \right) = \alpha + \sum_j \beta_j X_{ji} \quad (1)$$

with p_i being the probability of consumer i having a positive WTP, α and β are regression coefficients and X_{ji} are explanatory variables (a detailed list of all included variables is presented in Table IV). The maximum likelihood estimates are presented in Table V.

Overall, the model fit of the comprehensive model is satisfying with a Nagelkerke R^2 of 0.268 and a correct prediction of 73.2 per cent. The impact of the independent variable is reported by the effect coefficient $\exp(\beta)$, which indicates the change of the odds ratio when the independent variable increases by one unit. The odd ratio is defined as

$$\text{Odds}(WTP = 1) = \frac{p(WTP = 1)}{1 - p(WTP = 1)} \quad (2)$$

This implies that an effect coefficient above unity signals a positive impact of the independent variable on the probability of having a positive WTP, whereas an effect coefficient below unity signals a negative impact.

None of the sociodemographic and socioeconomic characteristics with the exception of income is significant in explaining the hypothetical WTP for protection. It was assumed that older people, people living in rural areas and people living in southern Hesse are more likely to pay a premium for a protected apple wine. This was based on the hypothesis that these consumer groups are more closely connected with Hesse resulting in a significantly higher probability to be willing to pay a premium for protection. This could not be proven by the data. However, significant impacts are found for the constructs “economic support” and “processing methods”. If consumers are convinced that geographical indications or regional specialties contribute to the local economy, they are willing to pay a price premium for a protected apple wine. The same is true for the perceptions about the way Hessian apple wine should be processed. People stating that they expect Hessian apple wine to be produced by using Hessian apples from Streuobstwiesen are also willing to pay a price premium for a protected Hessian apple wine. These results are in line with findings from previous consumer studies on perceptions and willingness to pay for regional and local foods. Sociodemographic and socioeconomic variables seem to be poor predictors of preferences for local food and regional specialties, whereas in most cases attitudes and perceptions can explain preference heterogeneity to a significant extent (Henseleit *et al.*, 2009; Zepeda and Lin, 2006).

Variables	Code	Mean	WTP	No WTP
"I would be willing to pay a premium for an apple wine that is protected as a geographical indication" ^a	WTP	0.48		
<i>Independent variables</i>				
<i>Sociodemographics</i>				
Age:				
Below 30 years (reference)			0.31	0.35
Between 30 and 49 years old	30-49 yrs		0.46	0.46
Above 49 years old	Above 49 yrs		0.23	0.19
Sex:				
Male (reference)			0.47	0.53
Female	Female		0.53	0.47
<i>Socioeconomics</i>				
Education:				
No qualification for university entrance (reference)			0.55	0.62
Qualification for university entrance	Higher_edu		0.45	0.38
Available monthly per-capita income:				
Below €750 (reference)			0.38	0.62
€750-€1,250	Income_medium		0.51	0.49
Above €1,250	Income_high		0.52	0.48
Size of the home town:				
Below 5,000 citizens (reference)			0.15	0.16
Above 5,000 citizens	Urban		0.85	0.84
Residence in Hesse:				
Middle and Northern Hesse (reference)			0.33	0.29
Southern Hesse	Southern Hesse		0.67	0.71
<i>Shopping and consumption behaviour</i>				
Place of apple wine purchase:				
Discounter (reference)			0.13	0.12
Supermarket	Supermarket		0.70	0.62
Producer	Producer		0.17	0.26
Shopping frequency of organic products:				
Never/seldom (reference)			0.29	0.46
Occasionally	Organic_occass		0.50	0.42
Regularly	Organic_regularly		0.21	0.12

Notes: $n = 432$; ^aThe top-two answers, "I fully agree" and "I agree", are coded as 1, all other answers are coded as 0

Source: Own presentation

Table IV.
Variables description and
descriptive statistics,
apple wine consumers

Discussion and conclusions

Previous studies on the Hessian apple wine market worked out that consumers perceive apple wine as a very region-specific product that is deeply rooted in Hesse. This result is confirmed and supported by the present study. This is an important requirement for a successful geographical indication. Barjolle and Sylvander (2000) analysed 20 PDO and PGI products with respect to the factors that are most important in determining the success of a geographical indication. They concluded that one of the most important determinants of success is the specificity of the product. Hence, the PGI

		Reduced model	Comprehensive model
Variables	Code	Exp(β)	Exp(β)
Dependent variable: hypothetical willingness to pay (no WTP = 0, WTP = 1)			
<i>Explanatory variables</i>			
Constant term		0.631 (0.361)	0.716 (0.556)
<i>Sociodemographics</i>			
Age	30-49 yrs	0.892 (0.659)	0.658 (0.147)
	Above 49 yrs	1.016 (0.963)	0.799 (0.548)
Gender	Female	1.253 (0.327)	1.186 (0.498)
<i>Socioeconomics</i>			
Education income	Higher_edu	1.167 (0.507)	1.167 (0.507)
	Income_medium	1.539 (0.147)	1.761 ^a (0.081)
	Income_high	1.716 ^a (0.072)	1.794 ^a (0.075)
Size of home town	Urban	1.014 (0.966)	1.042 (0.905)
Residence in Hesse	Southern Hesse	0.899 (0.666)	0.962 (0.886)
<i>Shopping and consumption behaviour</i>			
Place of apple wine purchase	Producer	0.595 (0.218)	0.745 (0.538)
	Supermarket	0.959 (0.910)	0.912 (0.824)
Organic foods	Organic_occass	1.525 ^a (0.085)	1.323 (0.292)
	Organic_regularly	2.070 [*] (0.032)	1.566 (0.237)
<i>Psychographic factors</i>			
Factor 1	Support dimension		2.342 ^{***} (0.000)
Factor 2	Processing dimension		1.780 ^{***} (0.000)
<i>n</i>		339	339
Percent correctly predicted (%)		56.9	73.2
LL-Value		453.05	392.45
Nagelkerke's R^2		0.059	0.268

Table V.
Results from the
estimated binary logit
model

Notes: ^a, *, **, *** denotes significance at the 10, 5, 1 and 0.1 per cent level, respectively
Source: Own presentation

label seems to be an appropriate tool to enforce this specificity and to promote the product at the regional and interregional level to target the growing consumer demand for traditional regional specialties.

However, a registered Hessian apple wine does not constitute its own reward. Like other labels or brands it must be promoted and advertised. This is especially relevant given the results from the consumer survey that only a very small share of consumers is familiar with this certification scheme. These findings suggest that the PGI logo itself will not boost the apple wine consumption in Hesse or in Germany. It seems rather necessary to involve the EU protection in a wider promotion campaign informing consumers about the granted protection and stressing the attributes of authenticity and typicality of Hessian apple wine. This conclusion is also strongly supported by the result that psychographic factors, that is attitudes and beliefs towards Hessian apple wine and the GI protection, do significantly influence the willingness to pay for protection. Informing consumers with respect to the impacts of a protected geographical indication seems to be indispensable. If consumers are convinced that through this certification scheme the local economy and the local culture can be supported, the protection can result in a higher willingness to pay. Hence, even if the results from the supply side indicate that the producer association primarily pursues a protection strategy, the granted protection should also be embedded in a promotion strategy. This seems to be appropriate given the increasing consumer interest in traditional and authentic products on the one hand and the lack of knowledge these labels stand for on the other hand. In promoting the protected Hessian apple wine, both traditional apple wine drinkers and potential new consumers interested in regional specialties can be attracted. However, different strategies may be pursued for different consumer segments. For local consumers the economic support dimension should come to the fore. If the protection is embedded in a broader promotion concept stressing the local support and biodiversity dimension, the PGI protection can possibly enhance the turnover in already existing marketing channels. Since out-of-home consumption is of great importance, the gastronomy must also be included. This could be accompanied by building up networks with producers of other Hessian specialty products such as Hessian Handkaes' which is typically consumed with Hessian apple wine. On the other hand, a promotion strategy targeting at new consumers that are not located in Hesse should focus on the quality warranty dimension and stress the high quality and authenticity of this product.

While targeting new marketing channels, especially long-distance distribution channels such as exports to foreign markets, the PGI label may serve as a quality standard securing authenticity and traceability. Consequently, the PGI label can reduce transaction costs if foreign retailers and/or consumers are already familiar with this certification scheme.

Even though this study provides valuable insights on consumers' perceptions and attitudes towards regional certification schemes, it has also raised several points for future research. One interesting aspect seems to be the interaction between the PGI label and individual brands. From the producers' point of view, the PGI label is considered to benefit all producers of Hessian apple wine likewise. Research on the effects of generic advertising, however, has shown that this does not necessarily be the case and that the promotion of the PGI label could affect individual producers and brands differentially (Crespi, 2007; Crespi and Marette, 2002).

Notes

1. The main difference between these two instruments is the extent of the quality-origin link. In the case of a PDO all stages of production must take place in the defined region. In the case of a PGI the products' characteristics need only to be attributable to the defined area and it is sufficient that at least one production stage takes place in the defined area
2. Cider is defined as an alcoholic beverage produced by the fermentation of the juices of apples without adding distilled alcohol. Synonyms are cidre, fermente de pomme, sidra, applecider, Apfelwein, äpplecider and siider (AICV, 2009). In the following cider is used to refer to the global market, whereas apple wine is used for the German resp. Hessian market.
3. There is no clear definition of regional foods or regional specialties. In this paper regional specialties are defined as products that are protected under regulation EC No. 510/2006 and products protected under regulation EC No. 509/2006 as traditional speciality guarantees (TSG).
4. Verband der Hessischen Apfelwein- und Fruchtsaft-Keltereien e.V. Geschäftsbericht, Heusenstamm, various years.
5. In Hesse, apple wine is also produced by home-brewers for personal consumption and by small companies that are not members of the Hessian apple wine producer association. These quantities are not included in the official statistics.
6. For the survey the old PDO logo was used. The new PDO logo was introduced in July 2008 due to the claim that consumers cannot distinguish between the two labels because of the optical similarity. However, at the time the survey was carried out a large share of PDO products was still labelled with the old logo. Therefore, it was decided to use the old blue-coloured logo instead of the new red-coloured one.

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