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Consumers' Awareness and Attitudinal Determinants of European Union Quality Label Use on Traditional Foods

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Abstract. This study analyses European consumers' awareness and determinants of use of PDO, PGI and TSG labels in six European countries (Italy, Spain, France, Belgium, Norway and Poland) using data from a cross-sectional survey with 4,828 participants. The study confirms a higher awareness of PDO (68.1%) as compared to PGI (36.4%) and TSG (25.2%). Awareness is higher among men and people aged above 50 years. Consumers' use of a PDO, PGI or TSG label is triggered by the belief that the label signals better product quality. Quality beliefs are shaped by an interest in getting information about product quality through the quality label. Interest in the origin of foods is a stronger direct and indirect driver of label use than interest in support for the local economy, but both motivations are not directly related to TSG-label use. Differences in the role of determinants are small between the three labelling schemes and between countries with versus without a strong tradition of quality labels in their agricultural and food quality policies. Apart from building general awareness and favourable quality perceptions of the quality schemes and their respective labels, efforts to stimulate consumers' interest in origin and getting information about product quality through EU quality labels are recommended.

Keywords. Consumer, EU food quality policy, PDO, PGI, Traditional food products, TSG

JEL-codes. D12; D83; Q13; Q18

1. Introduction

"A constantly increasing number of consumers attach greater importance to the quality of foodstuffs in their diet than to quantity." This statement as mentioned in the European Council Regulation EC 510/2006 (European Commission, 2006: L 93/12) was one of the main justifications for introducing the three European Union (EU) quality schemes related to geographical indications and traditional specialities as the cornerstone of the EU agricultural product quality policy. The three quality schemes are commonly known with their acronyms PDO (Protected Designation of Origin), PGI (Protected

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Geographical Indication) and TSG (Traditional Speciality Guaranteed), from which the PDO and PGI (geographical indications) schemes are the most widely used with more than 500 registered products each by the end of 2011 (European Commission, 2011). The PDO scheme covers agricultural products and foodstuffs which are produced, processed and prepared in a specific geographical area using recognised know-how. For PGI, at least one of the stages of production, processing or preparation has to take place in a specific geographic area. TSG highlights the traditional character of products, either in their composition or means of production, and hence, does not strictly refer to geographical origin (European Commission, 2012). The three schemes are used as a means of product differentiation for otherwise often unbranded or generic agricultural products (Verbeke and Roosen, 2009) and have built on a long history of regional and traditional specialities, especially in southern European countries (Teuber, 2010). Belletti and Marescotti (2011) stress the positive rural development potential of origin products – if well-embedded in a comprehensive rural development policy – through the fact that these create favourable economic, social, cultural and environmental effects. According to Sylvander and Barham (2011), geographical indications have gradually become part of the global economy and managed to become firmly embedded in it.

Food and agricultural quality policies are quite diverse across Europe. Becker (2009) identified several European regional clusters based on the focus in their food quality-enhancing policies, which included geographical indications as well as collective quality marks, quality assurance schemes and organic production. Specifically, France, Italy and Spain were classified as countries that are clearly PDO/PGI oriented, in contrast with Belgium, Norway and Poland, which were classified as rather food-quality-assurance scheme oriented, and "catching up with respect to PDO/PGIs" (Becker, 2009: 128).

The three quality schemes aim at providing consumers with clear and succinct information regarding the product origin or speciality character, in order to enable consumers to make the best possible choices, i.e. choices in line with their preferences. Many studies have focused on consumer issues related to geographical indications (for an overview, we refer to Carpenter and Larceneux (2008), Verbeke and Roosen (2009) and Aprile *et al.* (2012) or traditional specialities (e.g. Guerrero *et al.*, 2010; Vanhonacker *et al.*, 2010; Almli *et al.*, 2011). Whereas several studies support the idea that consumers value geographical indications and the traditional character as quality signals on food products (e.g. Caporale and Monteleone, 2001; van der Lans *et al.*, 2001; Espejel *et al.*, 2008; Hersleth *et al.*, 2011), several others report that consumer valuation cannot be taken for granted (e.g. Bonnet and Simioni, 2001; Loureiro and Umberger, 2007) and is often limited to particular market segments (Tregear and Giraud, 2011). Although an increasing trend towards consumer awareness of and interest in PDO/PGI/TSG food products has been acknowledged (Arfini *et al.*, 2011), further consumer research aiming at improving our understanding of consumer reactions towards geographical and traditional speciality labels in Europe has been recommended (Chrysochou *et al.*, 2012).

The objective of the present study is, first, to describe European consumers' awareness and second, to investigate attitudinal determinants of European consumers' interest in and use of geographical (PDO, PGI) and traditional speciality (TSG) labels when purchasing traditional foods. The data for this study have been collected through a cross-sectional pan-European consumer survey in six countries, namely Italy, Spain, France,

Belgium, Poland, and Norway. The choice of countries was informed by their geographical location across southern, central and northern Europe, and by the differences in those countries' focuses in terms of agricultural and food quality policies, most notably the different importance of products with a geographical indication or a traditional character in their policies. This paper will first develop and present the research framework for the study based on insights from previous consumer research with respect to quality labels. Next, materials and methods will be presented, including data collection and modelling approaches. Finally, findings will be presented and discussed, based on which conclusions and policy implications are set forth.

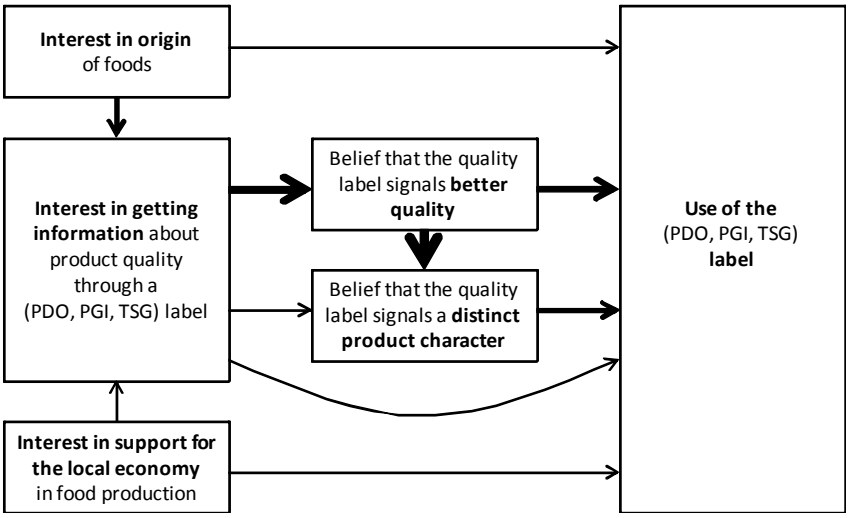
2. Research framework

The study validates a research framework with consumers' use of quality labels as the behavioural response or outcome variable of interest (Figure 1). The assumption is that quality labels fail to have an impact on behaviour and food choice unless they are used by consumers (Verbeke, 2005; Grunert and Wills, 2007), which makes it relevant to gain more insight in determinants of quality label use. The framework of the study is informed by a classical stage model of consumer decision-making (Solomon *et al.*, 2006) in which interest in getting information about product quality through a PDO/PGI/TSG quality label is hypothesised to trigger attitude formation (i.e. perceived quality and distinctiveness in this study) and a subsequent behavioural response (i.e. label use in this study).

Two motivations are assumed to fuel consumers' interest in getting information, namely interest in the origin of foods and interest in support for the local economy in food production (e.g. Lusk *et al.*, 2006). The first motivation refers to the fact that consumers might prefer products from certain regions or countries since they are believed to be simply better (i.e. more tasty, safer, healthier, more sustainable) (e.g. Loureiro and Umberger, 2007; Resano *et al.*, 2007; Dekhili *et al.*, 2011). The second motivation refers to consumer ethnocentrism or a so-called economic support dimension as identified by van Ittersum *et al.* (2007). Consumers might prefer products from their own region or country, e.g. because of loyalty to it and/or animosity towards others, or because of a related preference to support the local economy rather than remote or foreign economies.

Interests or motivations are hypothesised to influence label use both directly and indirectly through perceived quality as signalled by and inferred from the label information (van der Lans *et al.*, 2001). Quality has been identified as one of the explicit goals of traditional food chains (together with traditionalism) that effectively matter to consumers (Molnar *et al.*, 2011). Quality labels may generate positive associations or beliefs about product quality (Carpenter and Larcenaux, 2008; Resano *et al.*, 2007). Two perceptions of product quality are included in the study, namely the belief that the quality label signals better or superior quality, and the belief that the quality label signals a distinct product character (perceived distinctiveness). The hypothesis is that a quality label as an information cue may perform better in triggering label use if it communicates something meaningful and relevant from the consumer perspective, such as better or superior quality and/or distinctiveness. The research framework is operationalised for PDO, PGI and TSG separately. The overall study was performed within the broader context of traditional food consumption (Guerrero *et al.*, 2009, 2010).

Figure 1. Conceptual framework: determinants of use of quality labels (PDO, PGI, TSG)



Note: the thickness of arrows indicates a consensus on the strengths of paths as obtained from the SEM analyses performed in this study

3. Materials and Methods

3.1 Research approach and sampling

Quantitative descriptive data were collected through a cross-sectional consumer survey with samples representative for age, gender and region in Italy, Spain, France, Belgium, Poland, and Norway. The age range of the population was defined as 20-70 years. Total sample size was 4,828 with around 800 participants in each of the six considered European countries. Participants were randomly recruited from the representative TNS European Online Access Panel in line with the national population distributions with respect to age, gender and region. All contact and questionnaire administration procedures were electronic and web-based. Data collection was performed during the period from October 25 until November 9, 2007, as part of the pan-European TRUEFOOD (EU FP6) consumer study (Vanhonacker *et al.*, 2010).

Participants were asked to complete a self-administered structured electronic questionnaire. The master questionnaire was developed in English and translated in the national languages using the procedure of back-translation. Following back-translation, the questionnaire was extensively pre-tested by the researchers through personal interviews with 15-20 participants in each of the countries in order to identify and eliminate potential problems and to ensure linguistic equivalence. Fieldwork started after editing, correcting, electronic programming and additional pre-testing of the electronic version of the questionnaire. The average time for completing the total questionnaire ranged from 29'33" in France to 33'36" in Poland.

Detailed socio-demographic characteristics of the national and pooled samples are provided in Table 1. Gender is equally distributed, which reflects that the population was

intentionally not restricted to the main responsible person for food purchasing. Age distributions, mean age and mean household sizes match closely with the national census data for the respective countries. Table 1 also presents a proxy of socio-economic class, which was a subjective assessment (self-estimate) of the household's financial situation reported on a 7-point interval scale ranging from "1 = difficult" over "4 = moderate" to "7 = well off". The sample is slightly biased towards higher education and towards participants who reported to belong to the 'moderate-well off' socio-economic classes, which may be attributed to the use of an electronic survey method.

Table 1. Selected socio-demographic characteristics of the pooled and national samples

	Pooled sample n=4,828	Norway n=798	Belgium n=826	France n=801	Spain n=800	Italy n=800	Poland n=803
Gender (%)							
Female	49.2	49.1	49.4	51.9	47.4	47.3	50.2
Male	50.8	50.9	50.6	48.1	52.6	52.7	49.8
Age (years)							
< 35	34.1	34.1	28.5	33.7	35.5	35.0	37.9
35-55	46.4	47.5	46.4	46.4	47.4	45.8	44.8
>55	19.5	18.4	25.1	19.9	17.1	19.2	17.3
Mean	41.5	41.4	43.7	41.4	40.7	41.2	40.6
S.D.	12.8	12.5	13.3	12.8	12.3	12.8	12.8
Household size (number)							
Mean	2.9	2.6	2.7	2.7	3.1	3.2	3.0
S.D.	1.3	1.3	1.3	1.2	1.3	1.3	1.4
Financial situation (%)							
Difficult	24.6	24.8	17.8	35.5	18.9	29.8	21.3
Moderate	32.1	31.5	28.6	32.5	36.2	32.8	31.0
Moderate - well off	43.3	43.7	53.6	32.0	44.9	37.4	47.7
Education							
Lower secondary	8.6	9.8	8.1	9.0	9.4	12.4	2.6
Upper secondary	38.8	47.9	35.2	37.5	24.4	61.4	26.7
Higher education	52.6	42.3	56.6	53.5	66.2	26.2	70.7

3.2 Measurement and scaling

Consumers' awareness of the European food quality certification schemes was measured by asking the question "Have you ever heard of food products with PDO (Protected Designation of Origin)/PGI (Protected Geographical Indication)/TSG (Traditional Speciality Guaranteed)?" on three separate binary "yes"/"no" scales.

Interest in getting information about product quality through a PDO, PGI and TSG label as an information cue was measured by asking participants "To what extent would you like to be informed about the specific quality of a traditional food through a PDO-label (Protected Designation of Origin)/a PGI-label (Protected Geographical Indication)/a

TSG-label (Traditional Speciality Guaranteed)?" on a 7-point interval scale ranging from "1 = not at all" to "7 = very much".

Belief that PDO, PGI and TSG signals better quality on a food product was measured using the question "To what degree do you consider a PDO-label (Protected Designation of Origin)/a PGI-label (Protected Geographical Indication)/a TSG-label (Traditional Speciality Guaranteed) as signalling better quality food?", which was to be answered on a 7-point interval scale ranging from "1 = not at all" to "7 = very much".

Belief that PDO, PGI, TSG signals a distinct character of a food product was measured by asking participants "To what degree do you consider a PDO-label/a PGI-label/a TSG-label as signalling a distinctive character of traditional food?" on a 7-point interval scale ranging from "1 = not at all" to "7 = very much".

Use of PDO, PGI and TSG as an information cue in consumers' food purchasing decision-making was measured using the question: "To what extent do you consider a PDO-label (Protected Designation of Origin)/PGI-label (Protected Geographical Indication)/TSG-label (Traditional Speciality Guaranteed) when making food purchasing decisions?" to be answered on a 7-point interval scale ranging from "1 = not at all" to "7 = very much".

The questions probing for awareness, interest in getting information, beliefs and label use were asked for PDO, PGI and TSG in this order without randomising question items or label schemes. Finally, interest in the origin of foods was measured by the statement "It is important to me that the food I eat on a normal weekday has the country or region of origin clearly marked", whereas interest in support for the local economy in food production was assessed by the statement "It is important to me that the food I eat on a normal weekday has been produced while supporting the local economy", both on a 7-point Likert scale ranging from "1=I totally disagree" to "7=I totally agree".

3.3 Statistical analyses

Completed questionnaires were edited by the field research agency in order to ensure accuracy and precision of the response prior to coding and transcription of the data in SPSS 16.0. Given the large sample sizes and very low numbers of missing responses, pairwise deletion was used as the method for treating missing values. The research framework has been tested for PDO, PGI and TSG using structural equations modelling (SEM) by means of LISREL 8.72. With the use of SEM the examination of all the relationships between constructs and items is performed simultaneously, which is a substantial advantage compared with single equation modelling (Bollen, 1989). Due to the large sample size the χ^2 may not be the most appropriate measure of goodness-of-fit (Browne and Cudeck, 1993). Therefore, three other indices will be reported: the Root Mean Square Error of Approximation (RMSEA), the Goodness of Fit Index (GFI) and the Comparative Fit Index (CFI). Values below 0.08 for RMSEA (Browne and Cudeck, 1993) and above 0.90 for GFI and CFI (Bollen, 1989) suggest an acceptable fit of the model.

Given the differences in food quality policies and marketplace provenance of products with geographical and traditional speciality labels in the different countries involved in the study, we will empirically validate the model separately for the countries with a strong tradition of using this type of quality labels (Italy, Spain and France) versus the countries

without a strong emphasis on using these quality labels in their agricultural and food quality policies (Belgium, Poland and Norway).

4. Empirical findings

4.1 Consumers' awareness of PDO, PGI and TSG

Two thirds (68.1%) of the total sample reported to be aware of PDO, whereas the claimed awareness of PGI and TSG amounted only to 36.4% and 25.2%, respectively (Figure 2). Relatively more men to women were aware of PDO, PGI and TSG (Table 2). In line with the market presence of the quality schemes, French, Italian and Spanish consumers were significantly more aware of PDO, whereas relatively few Belgian, Norwegian and Polish consumers claimed to be aware of PDO. Additionally, relatively more Italian and relatively few Belgian and Polish consumers claimed to be aware of PGI. Relatively more Italian and Polish consumers were aware of TSG, in contrast with Belgian and French consumers.

Consumers above 50 years of age were significantly more aware of PDO, PGI and TSG than the younger ones. No significant differences in the awareness of PDO were found between people with different education levels, whereas relatively more consumers with upper secondary school education claimed to be aware of PGI and TSG. Household size did not significantly associate with the awareness of PDO, PGI or TSG on food products. Associations between self-reported financial situation and awareness of quality labels are statistically significant ($0.01<p<0.05$) but small.

Figure 2. Consumers' awareness of Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Speciality Guaranteed (TSG) in Belgium, France, Italy, Norway, Poland and Spain; total n = 4,828; n = 800 per country (%)

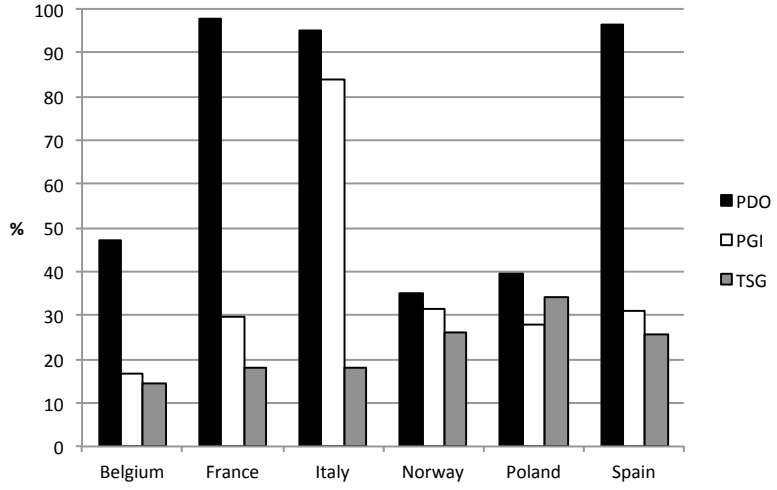


Table 2. Consumers' awareness of PDO, PGI and TSG by demographics and country

	Awareness of PDO		Test statistic*	p-value	Awareness of PGI		Test statistic	p-value	Awareness of TSG		Test statistic	p-value	Total sample
	Yes	No			Yes	No			Yes	No			
Gender (%)			12.5	0.001			46.26	<0.001			2.62	0.056	
Female	47.6	53.0			42.7	52.8			47.2	49.9			49.3
Male	52.4	47.0			57.3	47.2			52.8	50.1			50.7
Country (%)			1757.4	<0.001			957.82	<0.001			143.4	<0.001	
Belgium	11.7	28.7			7.7	22.5			9.6	19.6			17.1
France	23.7	1.2			13.5	18.4			11.8	18.2			16.6
Italy	23.1	2.6			37.8	4.4			22.3	14.6			16.6
Norway	8.5	33.7			14.2	17.9			17.0	16.4			16.5
Poland	9.6	31.8			12.7	18.9			22.6	14.6			16.6
Spain	23.4	1.9			14.0	18.0			16.7	16.5			16.6
Age category (%)			16.07	<0.001			23.82	<0.001			33.61	<0.001	
< 35 yr	32.3	37.7			30.1	36.3			29.3	35.7			34.0
35-55 yr	49.0	47.0			49.2	47.5			48.2	48.4			48.3
> 55 yr	18.7	15.4			20.1	16.2			22.5	15.9			17.6
Mean age (years)	41.98	40.52	1.46	<0.001	42.8	40.8	2.10	<0.001	43.7	40.8	4.32	<0.001	
Education (%)			3.24	0.198			21.57	<0.001			9.92	0.007	
Lower secondary	9.1	7.6			9.0	8.3			9.2	8.3			8.6
Upper secondary	38.6	39.1			42.7	36.6			42.0	37.7			38.8
Higher education	52.3	53.4			48.3	55.1			48.7	53.9			52.7
Household size (#)			2.37	0.67			1.46	0.15			0.109	0.092	
Mean	2.89	2.87			2.92	2.86			2.94	2.86			2.88
Financial situation (%)			6.59	0.037			6.18	0.045			7.3	0.026	
Difficult-Moderate	25.7	22.3			22.7	25.7			22.4	25.4			24.7
Moderate	31.8	32.7			32.2	32.1			31.2	32.4			32.1
Moderate - Well off	42.5	44.9			45.1	42.2			46.4	42.2			43.3

*Test statistics used: Chi-square association test for Gender, Country, Age category, Education, Financial situation; Independent samples t-test for Mean age and Mean household size

4.2 Determinants of consumers' use of PDO, PGI and TSG

Three multi-group analyses have been performed in order to identify the determinants of use of the three quality labels. Participants who were not aware of the PDO label (n = 1,541), the PGI label (n = 3,071) and the TSG label (n = 3,612) have been excluded from the SEM analyses. As a result, the Lisrel model analyses were performed with a sample of n = 3,287 participants who were aware of PDO; n = 1,757 who were aware of PGI; and n = 1,216 who were aware of TSG. First, inter correlations between the constructs of the research model were checked, as for example presented in Table 3 for the PDO model. All correlation coefficients across the three models were significant but below 0.80, thus (severe) multicollinearity is not a concern in the present data (Tabachnick and Fidell, 2001).

Table 3. Construct correlation matrix for PDO (n = 3,287)

Construct	1	2	3	4	5	6
1. Use of the PDO label	1.00					
2. Interest in getting information through PDO	0.50	1.00				
3. Belief that PDO signals better quality	0.64	0.49	1.00			
4. Belief that PDO signals distinct character	0.62	0.50	0.74	1.00		
5. Interest in support for the local economy	0.28	0.30	0.20	0.21	1.00	
6. Interest in origin of foods	0.33	0.37	0.23	0.25	0.53	1.00

Note: All correlations are statistically significant at p<0.01 (two-tailed)

The proposed model performed relatively well for the three schemes. The PDO model fitted the data best with $\chi^2 = 91.89$ and 14 degrees of freedom ($p<0.001$); the RMSEA value of 0.058; the GFI 0.99 and the CFI 0.99, which are satisfactory goodness-of-fit indices (Table 4). Additionally, the goodness-of-fit statistics indicated that the presented research framework was acceptable as well for the PGI model (Satorra-Bentler $\chi^2 = 85.09$, df = 14; RMSEA=0.076; Table 5) and tentatively acceptable for the TSG model (Satorra-Bentler $\chi^2 = 78.23$, df = 14; RMSEA = 0.087; Table 6).

Consistent results are obtained across the three models and two sets of countries. First, interest in the origin of foods fuels consumers' interest in getting information about product quality through a PDO/PGI/TSG-label. This motivation is much stronger associated with interest in getting information through a label than the relationship with interest in support for the local economy in food production. A notable exception is the PGI-model for Belgium, Norway and Poland, where the relation of both motivations with consumers' interest in getting information through a PGI-label is nearly equal. Second, direct relations between interest in origin or support for local economy and label use are small for PDO and PGI, and insignificant for TSG. Also the direct relation between interest in getting information through the labels and label use is rather small. Third, consumers'

Table 4. Determinants of consumers' use of Protected Designation of Origin (PDO) label

Path from	to	Italy, Spain, France (n=2,308)	Belgium, Norway, Poland (n=979)
Motivations			
Interest in origin of foods	Interest in getting information through PDO	0.31	0.24
Interest in support for the local economy	Interest in getting information through PDO	0.13	0.14
Interest in origin of foods	Use of the PDO label	0.10	0.11
Interest in support for the local economy	Use of the PDO label	0.07	0.06
Interest in getting information through PDO	Belief that PDO signals better quality	0.49	0.42
Interest in getting information through PDO	Belief that PDO signals distinct character	0.15	0.20
Interest in getting information through PDO	Use of the PDO label	0.15	0.14
Perceived quality			
Belief that PDO signals better quality	Belief that PDO signals distinct character	0.67	0.62
Belief that PDO signals better quality	Use of the PDO label	0.30	0.40
Belief that PDO signals distinct character	Use of the PDO label	0.29	0.22

Goodness-of-fit statistics: $\chi^2(14) = 91.89$, $p<0.001$; RMSEA = 0.058; NNFI = 0.982; CFI = 0.992; GFI = 0.988.
Only significant coefficients ($p<0.05$) are shown; reported coefficients are direct effects only.

Table 5. Determinants of consumers' use of Protected Geographical Indication (PGI) label

Path from	to	Italy, Spain, France (n=1,148)	Belgium, Norway, Poland (n=609)
Motivations			
Interest in origin of foods	Interest in getting information through PGI	0.37	0.24
Interest in support for the local economy	Interest in getting information through PGI	0.12	0.20
Interest in origin of foods	Use of the PGI label	ns	0.07
Interest in support for the local economy	Use of the PGI label	0.10	0.13
Interest in getting information through PGI	Belief that PGI signals better quality	0.55	0.47
Interest in getting information through PGI	Belief that PGI signals distinct character	0.13	0.16
Interest in getting information through PGI	Use of the PGI label	0.17	0.10
Perceived quality			
Belief that PGI signals better quality	Belief that PGI signals distinct character	0.69	0.66
Belief that PGI signals better quality	Use of the PGI label	0.39	0.34
Belief that PGI signals distinct character	Use of the PGI label	0.27	0.29

Goodness-of-fit statistics: $\chi^2(14) = 85.09$, $p<0.001$; RMSEA = 0.076; NNFI = 0.985; CFI = 0.987; GFI = 0.988.
Only significant coefficients ($p<0.05$) are shown; ns = not significant; reported coefficients are direct effects only.

Table 6. Determinants of consumers' use of Traditional Speciality Guaranteed (TSG) label

Path from	to	Italy, Spain, France (n=617)	Belgium, Norway, Poland (n=599)
Motivations			
Interest in origin of foods	Interest in getting information through TSG	0.33	0.25
Interest in support for the local economy	Interest in getting information through TSG	0.14	0.16
Interest in origin of foods	Use of the TSG label	ns	ns
Interest in support for the local economy	Use of the TSG label	ns	ns
Interest in getting information through TSG	Belief that TSG signals better quality	0.55	0.53
Interest in getting information through TSG	Belief that TSG signals distinct character	0.14	0.15
Interest in getting information through TSG	Use of the TSG label	0.09	0.10
Perceived quality			
Belief that TSG signals better quality	Belief that TSG signals distinct character	0.71	0.69
Belief that TSG signals better quality	Use of the TSG label	0.42	0.34
Belief that TSG signals distinct character	Use of the TSG label	0.28	0.34

Goodness-of-fit statistics: $\chi^2(14) = 78.23$, $p<0.001$; RMSEA = 0.087; NNFI = 0.965; CFI = 0.983; GFI = 0.982; ns = not significant
Only significant coefficients ($p<0.05$) are shown; ns = not significant; reported coefficients are direct effects only

belief that PDO/PGI/TSG signal better quality emerges as the strongest driver of label use. On one hand, this quality perception is strongly influenced by interest in getting information about product quality through the label, and its relationship with label use on the other hand is further reinforced by a strongly associated belief that the quality label signals a distinct product character. Fourth, the role of perceived distinctiveness as moderator and determinant of label use is significant but somewhat weaker.

Only few differences between both sets of countries are observed. The path from interest in the origin of foods, over interest in getting information through a quality label, to label use is stronger in countries with a tradition of quality labels (Italy, Spain, France). Paths involving interest in support for the local economy are similar – whether significant or not – across countries for the PDO and TSG model, but somewhat stronger in the PGI model for countries without a tradition of quality labels (Belgium, Norway, Poland). Finally, there is also a tendency that the role of perceived distinctiveness is more prominent in countries without a tradition of quality labels, which is most apparent for the PGI and TSG models.

5. Discussion and conclusions

The present study assessed European consumers' awareness of PDO/PGI/TSG and it proposed and validated a research framework for analysing consumers' use of those labels when making food purchasing decisions. The study faces specific strengths owing to its quantitative and cross-cultural approach with large consumer samples, but also some limitations owing to the use of single item constructs, the non product-specific nature of the study and the sampling procedure (on-line consumer panel). Framing was limited to traditional foods, which is a very broad product category (Guererro *et al.*, 2009). It remains to be investigated whether the framework holds equally for quality labels on meat or dairy products versus olive oil versus alcoholic drinks, for example. Despite the use of nationally representative samples with respect to age, gender and region, the use of an online survey method may have introduced some bias towards higher educated and financially better off participants.

First, consumers' awareness of geographical indications, especially PDO, is very high in the countries with a strong tradition of using this quality scheme. Awareness of PGI is at a comparable high level as PDO in Italy, but much lower than PDO in France and Spain. This finding is remarkable since the market presence of PGI in terms of the number of registered products is at a comparable level as for PDO in France and Spain, whereas the number of registered PDO products largely outweighs the number of PGI products in Italy (Arfini *et al.*, 2011). Apparently, the PGI products have been much more successful in building consumers' awareness in Italy than in France and Spain. Awareness about products with TSG is highest in Poland, which coincides with the fact that Poland has the largest number (nine by the end of 2011) of registered TSGs among the countries in the study. Despite the fact that France and Norway had no registered TSGs at that time, awareness levels around 20-25% are reported. Our findings confirm a high level of consumers' awareness of PDO in the countries with a tradition of geographical indications, which in our study are located in Southern (Italy and Spain) and Western (France) Europe (Arfini *et al.*, 2011), but also indicate a considerable gap with consumers' awareness of PGI and TSG, as well as substantial differences in awareness between countries with versus without a tradition of geographical indications in their agricultural and food quality

policies. While some of the observed differences corroborate with market presence and quality policies in the respective countries, others are not straightforward in their interpretation and may require additional research. In addition, it should be noted that objective knowledge about the attributes guaranteed by geographical indications is low, even among Italian consumers (Aprile *et al.*, 2012).

Second, with respect to socio-demographics, a higher awareness is reported among men and older consumers for each of the schemes. In comparison, Dekhili *et al.* (2011) reported a higher use of official cues including the French AOC (Appellation d'Origine Contrôlée) among women and older consumers, versus a higher use of origin cues (country and region of origin) among men for the case of olive oil. Bonnet and Simioni (2001) found a positive age and income effect on willingness-to-pay for Camembert cheese. Loureiro and Umberger (2003) reported stronger support in terms of willingness-to-pay for country-of-origin labelled beef among female and wealthier consumers. Income effects are small in our sample where income was measured as a self-estimate of wealth. If willingness-to-pay for products with quality labels is effectively higher among females, wealthier and older consumers, it is paramount to ensure that also awareness of these cues is higher within these consumer segments. However, the findings from our study do not suggest patterns that are consistent with this logic. Hence, additional targeted efforts towards creating higher consumers' awareness of PDO/PGI/TSG among segments with a higher possible willingness-to-pay are recommended.

Third, findings from this study confirm the prominent role of motivations and quality perceptions in shaping consumers' use of the respective labels in food purchasing decisions. The structure of attitudinal determinants of label use is consistent across the three labelling schemes. The exception of non-significant direct paths from origin and local economy support in the TSG-model is consistent with the positioning of the TSG scheme, which is not directly related to geographical origin or local produce. Apart from a potentially stronger role of consumer ethnocentrism in the case of TSG in countries without a strong tradition of quality labels, only minor differences are detected between the motivational structures of consumers in countries with a different emphasis on quality labels in their agricultural and food quality policies. The study herewith indicates that similar triggers (e.g. product positioning and marketing communications) can be used to stimulate consumer interest in and use of PDO, PGI and TSG across Europe. Apart from building general awareness, highest success can be expected from policy and communication efforts that: stimulate consumers' interest in the origin of foods, trigger interest in getting information about product quality through the quality schemes and labels, and build favourable perceptions about quality and distinctiveness of products with PDO, PGI or TSG labels.

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