Consumer awareness of PDO-labelled food in Slovenia

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ABSTRACT
The study analyses the importance of the protected designation of origin (PDO) as a selection criterion in purchases of traditional food products in a consumer’s daily life, the awareness of products with a PDO label, and determinants of use of the PDO label for purchasing PDO-labelled products. A survey questionnaire was distributed by regular mail to a representative sample of Slovenian consumers. The survey results show that the presence of a PDO label on a food package is not too important for respondents. Slovenian consumers tend to pay greater attention to the taste of the product, its positive impact on their health, and the ingredients. There is low awareness of PDO-labelled products, which may be explained by the fact that Slovenia has a weak tradition in using geographical indications. Among consumers who were aware of products with a PDO label, their interests and quality perceptions played a significant role in shaping their use of the PDO label. The study demonstrated a direct relationship between the belief the PDO signals a better-quality product and use of the PDO label.

HIGHLIGHTS
• A PDO label is not too important to Slovenian consumers.
• There is poor awareness of the PDO label.
• It is worth investing in PDO labels.

Introduction
In the last few decades, demand has been growing for food products manufactured using traditional methods directly linked to a certain territory (Pauselli et al. 2009; Velčovská 2012). This trend reflects public concern for safety, quality, healthiness and sustainability in food production practice (Vermeir and Verbeke 2006). Policymakers and the food industry have introduced several strategies like a quality scheme and quality labelling to help consumers choose quality food and guarantee product quality.

The European Commission has established a common legislative framework for the EU quality scheme known as the protected designation of origin (PDO). The scheme covers agricultural products and foodstuffs produced, processed and prepared in a given geographical area using recognised knowledge (Becker 2009). Since the PDO scheme is the most important one designed by the EU to promote and protect the names of regional foods (Becker 2009), this paper focuses on food products with a PDO label.

Slovenia is a country with a weak tradition in EU quality labels. As the most developed country of former Yugoslavia, it acts as a role model for the Western Balkan countries and it is therefore worth studying Slovenian consumers’ awareness of PDO-labelled food products in a wider international context. Slovenia is a country of great diversity as much for its tradition as its customs, which is also reflected in the variety of its local and traditional food products. Accordingly, Slovenian agricultural policy has concentrated on protecting and promoting the names of regional food products (Klopič et al. 2013). Eight Slovenian food products with the PDO label (four cheeses, two honeys, one salt and one extra virgin olive oil) have so far been registered with the EU (European Commission 2016).
Consumer awareness and understanding of label information are crucial for determining, maintaining, and communicating labels of food quality (Verbeke et al. 2012). Despite the growing professional interest in and literature on consumer awareness of PDO food products (Moschini et al. 2008; Aprile et al. 2009, 2012; Ababio et al. 2012; Velčovská 2012; Verbeke et al. 2012; Pinna et al. 2014; Grunert and Aachmann 2016) and attitudinal determinants of the use of food products (Van der Lans et al. 2001; Van Ittersum et al. 2003; Resano et al. 2012; Verbeke et al. 2012), consumer preference studies regarding the PDO label are scarce in countries that have no established tradition with quality labels, such as Slovenia and the Balkan countries. Given Slovenia’s poor tradition in using the PDO label, questions arise about whether Slovenian consumers are as aware of food products with a PDO label, and among those consumers who know PDO-labelled food products which attitudes determine the use of food products with a PDO label. For this reason, the study aims to identify Slovenian consumer awareness of food products with a PDO label, the role of the PDO label in consumers’ purchase decisions, and consumers’ attitudinal determinants of the use of food products with a PDO label.

A review of 35 published studies on how EU quality labels affect consumers shows that quality labels can have a function only to the extent that consumers are aware of them, understand them, and use them in their decision-making (Grunert and Aachmann 2016). Consumers appear to be confused and disoriented in interpreting the contents of European labels (Moschini et al. 2008; Aprile et al. 2009, 2012; Ababio et al. 2012; Verbeke et al. 2012; Velčovská 2012; Pinna et al. 2014). Current studies show low awareness among Belgian, Norwegian, Polish and Czech consumers and higher awareness among French, Italian and Spanish consumers due to their traditions with EU quality labels (Verbeke et al. 2012; Velčovská 2012). Awareness was higher among men and persons older than 50 years. To what extent are Slovenian consumers aware of food products with a PDO label?

The importance of the criteria used by consumers when making day-to-day choices of food has been analysed by different authors. For example, Grankvist and Biel (2001) reported Swedish consumers rated product taste as the most important purchase criterion. However, the ranking of the EU’s quality labels varies depending on the country. Velčovská (2012) found that price and experience/familiarity with the product were the biggest factors influencing food purchases. Czech consumers rated the EU quality labels, such as the PDO one, as being low in importance. Pinna et al. (2014) showed that EU quality labels like the PDO one were ranked as an important criterion used by Italian consumers when buying food. The question arises of how important is the PDO label for Slovenian consumers when they are purchasing food products?

Consumers’ attitudes to the PDO label are composed of a set of beliefs, cognitive and affective associations and are one of the key determinants of purchase intention and subsequent actual purchase of a product (Resano et al. 2012). Verbeke et al. (2012) found that a consumer’s use of a PDO label is triggered by the belief the label signals better product quality. Other authors (Van der Lans et al. 2001; Van Ittersum et al. 2003) also found the PDO label influenced the regional production preference via perceived quality. What are the attitudinal determinants of Slovenian consumers’ use of food products with a PDO label?

Two areas of interest or motivation fuel the consumer’s interest in obtaining information on food products with the PDO label; namely, interest in products that are made in the region, and interest in opportunities to purchase PDO products (Verbeke et al. 2012). The first interest refers to the idea that consumers might prefer a product from a certain region because they are believed to be better (Resano et al. 2012; Verbeke et al. 2012). The second interest refers to the information search and decision-making model (Salomon et al. 2006), which presupposed that consumers with an interest in opportunities to buy specific products might have the same interest in obtaining information on the specific food products as they have the intention to purchase them. Interests are hypothesised to influence label use via perceived quality as signalled by and inferred from label information (Verbeke et al. 2012). The study assumed that quality labels such as the PDO may create positive beliefs the PDO label signals better quality and taste.

Since current studies neglect the problem of consumer awareness of PDO food products and the attitudinal determinants of using food products with a PDO label in countries that have no established tradition in EU quality labels such as Slovenia and the Western Balkan countries, this study tries to close this research gap.

**Materials and methods**

For the purposes of this study, a representative sample of Slovenian consumers as to age, gender,
education and region of residence was prepared. The age range of the population was defined as 18–85 years. A survey questionnaire was distributed by regular mail to also reach older consumers and those living in rural areas. In total, 333 questionnaires were fully completed. The questionnaire was divided into four parts. Part 1 analysed the importance of food product selection criteria in consumers’ daily life (taste, health benefit, ingredients, feeling benefit, expiry date, product familiarity, country of origin, price, nutrition information, convenience, environmental interest, brand name, package attractiveness, labels of special quality and PDO label), using a seven-point interval scale from ‘1 = Not at all important’ to ‘7 = Extremely important’ (Velčovská 2012; Pinna et al. 2014). Part 2 sought answers to the questions of understanding the awareness of food products with a PDO label, with binary ‘yes’/’no’ answers (Pinna et al. 2014). Part 3 dealt with attitudinal determinants of consumers’ use of products with a PDO label. For the study’s purposes, we adjusted Verbeke et al.’s (2012) measurements to the Slovenian context of products with a PDO label, using a seven-point interval scale ranging from ‘1 = Not at all’ to ‘7 = Very much’. The interest in obtaining information about food products with a PDO label was measured. Using the same seven-point Likert scale, we asked the respondents whether or not they believed the PDO signalled the better quality and taste of food products. Using the same interval scale, the respondents were asked to what extent they considered a PDO label when making a purchasing decision. Part 4 of the questionnaire focussed on socio-demographic information of the respondents, including their age, gender, education level, and income level.

Data were coded and analysed by SPSS 24.0 using descriptive statistics (χ²-test) and structural equation modelling (SEM) by means of LISREL.

Results

Profile of the respondents

The sample of respondents involved in the research study consisted of 333 Slovenian consumers (see Table 1). The respondents were females (55%), between 51 and 70 years of age (34.8%), with a secondary education (52.2%), and a household net income in the low interval (30.3%).

The importance of consumers’ selection criteria when purchasing food products

Table 2 shows the mean importance ratings of 15 attributes consumers consider when purchasing food products in their daily life. Above all, consumers tend to pay greater attention to the taste of a food product (M = 6.34; SD = 0.84), its positive impact on their health (M = 6.08; SD = 1.14) and ingredients in the product (M = 6.00; SD = 1.22). The presence of a PDO label on the package of a food product was ranked, together with labels of a special quality (prize, award and certificate of control), brand name, and package attractiveness, as not being too important for the respondents.

Awareness of food products with a PDO label

With regard to consumer awareness, 64.53% of the respondents declared they had no knowledge of food products with a PDO label.
products with a PDO label, whilst 35.53% of the respondents mentioned remembering the name.

Table 3 shows that consumers with a secondary education were significantly more aware of food products with a PDO label than consumers with other levels of education. This means that those with the highest education levels are the least likely to be aware of the PDO label.

No significant differences in awareness of food products with a PDO label were found between consumers of various ages. The association between the self-reported financial situation and awareness of food products with a PDO label was not statistically significant.

Determinants of consumers’ purchasing of food products with a PDO label

SEM analysis was conducted to identify the determinants of using food products with a PDO label. Respondents not aware of PDO labels were excluded from the SEM analysis. The LISREL model analysis was conducted on a sample of n = 181 respondents.

Table 4. Construct correlation matrix (n = 181).

| Construct                                | 1   | 2   | 3   | 4   | 5   | 6   |
|------------------------------------------|-----|-----|-----|-----|-----|-----|
| 1. Use of a PDO label                    | 1.00|     |     |     |     |     |
| 2. Interest in obtaining information on PDO food products | 0.60| 1.00|     |     |     |     |
| 3. Belief that PDO signals better quality food products | 0.69| 0.59| 1.00|     |     |     |
| 4. Belief that PDO signals better tasting food products | 0.72| 0.60| 0.64| 1.00|     |     |
| 5. Interest in the production of local products | 0.38| 0.40| 0.30| 0.31| 1.00|     |
| 6. Interest in opportunities to purchase PDO products | 0.43| 0.47| 0.33| 0.35| 0.63| 1.00|

All correlations are statistically significant p < .01 (two-tailed).
PDO label (Vel of whom just 3% claimed to know of products with a PDO label than their French, Italian or Spanish counterparts, whereas people in rural areas who live closer to production activities might have first-hand experience with food products with a PDO label and do not need as much help from education. However, the impact of personal experience on consumers who have completed secondary education living in a rural area might be higher than consumers with other education levels as highly educated people are less aware of such labelled products due to the small number of labelled products available and inadequate marketing.

The survey results confirm the dominant role of interests and quality perceptions in shaping consumers’ use of a PDO label (Verbeke et al. 2012). This study demonstrates an even stronger direct relationship between the belief that the PDO signals better quality products and the use of a PDO label, whilst Verbeke et al. (2012) identified a weaker relationship. This phenomenon may be explained by the fact that those Slovenian consumers who do purchase PDO products perceive the areas of the production of such products as healthy and unpolluted, and that food products originating from these areas have a special quality (Klopcic et al. 2013).

The study shows that quality perception is strongly influenced by the belief that the PDO signals better tasting products, and its relationship with the use of the PDO is further reinforced by the strongly associated belief that the PDO signals better taste.

However, the cognitive mechanisms that might underlie this finding, such as the halo effect (Roe et al. 1999; Clement et al. 2017), require greater attention in the future.

The results also show that sustained communicational and promotional efforts should be made to stimulate consumers’ interest in the production of local/regional products, such as local food products, and to trigger their interest in obtaining information on food product quality via the PDO and other quality schemes.

The main limitation of this study is that it focussed on hypothetical food products in hypothetical decision-making situations. Other methods such as observation with interviews may produce quite different results. Future studies should focus on the question of why information about the PDO-labelled

### Table 5. Determinants of consumers’ purchase of food products with a PDO label (n = 181).

| Path from                                      | to                                             | \( \beta \) |
|-----------------------------------------------|------------------------------------------------|----------|
| Interest in opportunities to purchase PDO products | Interest in obtaining information on PDO products | 0.41     |
| Interest in the production of local products  | Interest in obtaining information on PDO products | 0.23     |
| Interest in opportunities to purchase PDO products | Use of a PDO label                              | 0.40     |
| Interest in the production of local products  | Use of a PDO label                              | 0.29     |
| Interest in obtaining information on PDO products | Belief that PDO signals better quality products  | 0.59     |
| Interest in obtaining information on PDO products | Belief that PDO signals better tasting products  | 0.35     |
| Use of a PDO label                            | Belief that PDO signals better tasting products  | 0.35     |
| Belief that PDO signals better quality products | Belief that PDO signals better tasting products  | 0.67     |
| Belief that PDO signals better quality products | Use of a PDO label                              | 0.70     |
| Belief that PDO signals better tasting products | Use of a PDO label                              | 0.39     |

Goodness-of-fit statistics: \( \chi^2(14) = 81.89; p < .05; \) RMSEA = 0.068, GFI = 0.99. Only significant coefficients \( p < .05 \) are shown; reported coefficients are direct effects only.
food product can lead consumers to infer information about other positive properties, such as better quality and taste.

Conclusions

The study results show that the presence of a PDO label on a food package is not too important to Slovenian consumers. They tend to pay more attention to the taste of the food product, its positive impact on their health, and the ingredients. There is poor awareness of food products with a PDO label, although Slovenia belongs to Mediterranean countries and Slovenian consumers increasingly demand products manufactured using the traditional methods and produced in their own geographical region.

For consumers, who were aware of food products with a PDO label, the interests and quality perceptions played a significant role in shaping the use of a PDO label. The study demonstrated a direct relationship between the belief that the PDO signals better quality of food products, and the use of a PDO label.

Disclosure statement

No potential conflicts of interest were reported by the authors.

Ethical approval

The study was conducted according to the criteria set by the declaration of Helsinki and each subject signed an informed consent before participating to the study.

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