

Measuring Consumers' Preferences for Traditional and Innovative Pork Products

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Summary

In this research we proposed an integrated methodological approach to measure the “real” consumers’ preference towards new Traditional (TPP) and Innovative Pork Products (ITPP) from three untapped pig breeds in Spain (*Porc Negre*), Italy (*Cinta Senese*) and Slovenia (*Krškopolje*). We first analyse consumers’ perception towards the traditional concept in pork products. Results showed high preference heterogeneity amongst countries. After the eating experience, the expected preferences were affected significantly in particular in Italy and Slovenia. The likelihood to purchase the innovative pork products increased as well.

Key words

consumers’ preference, consumers’ acceptance, pork products

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Introduction

The analysis of consumers' preference towards traditional food products (TFP) and innovative food products (ITFP) is gaining relevance in the last decades. The European Parliament and the Council of the European Union (2012) identifies the TFP as a product with a *proven usage on the domestic market for a period that allows transmission between generations; this period is to be at least 30 years*". Thus analyzing consumers' perception and the consumer-driven definition towards the TFP is highly relevant to understand consumers' reaction to new products at market place (Balogh *et al.*, 2016). The meat industry has started introducing innovations to improve the nutritional and health properties of meat processed products (Toldra & Reig, 2011). The demand for food products enriched with natural ingredients that provide health benefits is increasing. Thus, the production of healthier products is one of the innovations that is being continuously incorporated into processed meat products. The innovative pork products with healthy benefit are still at an early stage, with only a few products launched on the global market (Grasso *et al.*, 2014).

In this context, consumers' preferences and purchase intention towards pork products obtained from three untapped pig breeds in Spain (*Porc Negre*), Italy (*Cinta Senese*) and Slovenia (*Krškopolje*) were analysed. In each case study, and according to each market interest and potential expected demand, specific products and innovations were identified. Table 1 shows a summary of the selected products.

Within the range of techniques that analyze preferences, several alternatives are available. The Choice Experiment (CE) is one of the most used in the exploration of individuals' preferences (Alfens, 2004). This method has demonstrated its capacity to analyze preferences for "complex goods" such as food products. The choice experiment aims at identifying the individual's indirect utility function associated with attributes of products by examining the trade-offs consumers make when making choices at the retail outlet. Thus, several alternatives (products) that are described by several attributes (breed, innovations and price) with varying levels (breed types, innovation types, price levels) are presented to the respondents in an array of choice sets or cards. These cards show different competing products at different prices. Within each choice card, respondents are then asked to select his/her preferred product (alternative) or to rank the products from the best to worst product, thereby revealing his/her preference for certain attributes and levels. Subsequently, the willingness to pay for the different attributes (and consequently the breed or the innovation) can be indirectly recovered from respondents' choices. The conceptual foundations of CE rely on

Lancaster's Theory of Value (Lancaster, 1966), which proposes that utilities for goods can be decomposed into separable utilities for their characteristics or attributes, and Random Utility Theory (Thurstone, 1927), which explains the dominance judgments made between pairs of offerings.

Consumers' preferences were analyzed before (expected preference) and after the eating experience (experienced preferences). We applied a real Discrete Choice Experiments (DCE) in order to avoid the hypothetical bias. In a hypothetical DCE, consumers choose their preferred product from each choice set without any real consequence derived from this selection (i.e. they choose one product but they do not have to buy it). Several studies have criticized this approach since some results seem to show divergence between what consumers select as their preferred product and what they would purchase in real life, posing under question the validity of hypothetical experiments (Loomis, 2014). Previous studies indicate that individuals, in general, respond to hypothetical scenarios surveys differently from the way they act in real life (Murphy *et al.*, 2005). It is quite common to find that individuals say they are willing to pay higher prices than those that they are really willing to pay. This is due to the difficulty in calculating the exact impact of these higher expenses on the household economy. It is easy to be generous when in reality one does not need to pay more.

To overcome such disparity, some alternatives have been developed in the literature. One of the most convincing ones is the inclusion of economic incentives by creating a real shopping scenario. In such a situation consumers have an incentive to behave truthfully and to choose the products he/she would actually buy in a real setting. To create a real shopping scenario, consumers are usually unexpectedly informed that they will be rewarded with some additional income. Participants who participate in the survey should "purchase" their preferred product and pay its price.

Material and methods

We first analyzed the consumer-driven definition of the traditional concept in pork products on the basis of literature. Twenty-two statements were evaluated using 9-point Likert scale ("1" disagree very strongly, "2" disagree strongly, "3" disagree moderately, "4" disagree slightly, "5" neutral, "6" agree slightly, "7" agree moderately, "8" agree strongly and "9" agree very strongly). The most relevant statements were: anchored in the past (Guerrero *et al.*, 2009), tied to specific localities, regions or countries and typically evoke strong memories of childhood (Cerjak *et al.*, 2014; Rudawska, 2014), passed from one generation to generation and usually in a domestic setting or by artisans

Table 1. The Traditional and Innovative Pork Products in each case study

	Spain	Italy	Slovenia
Untapped breed	Porc Negre	Cinta Senese	Krškopolje
Traditional Pork Product (TPP)	Patties	Salami	Salami
Innovative Traditional Pork Product (ITPP1)	Enriched with a natural source of Antioxidants	With natural preserving agent	Without preserving agent
Innovative Traditional Pork Product (ITPP2)	Enriched with a natural source of dietary fibre	-	-

(Guerrero *et al.*, 2009), possess distinctive and positive sensory merits (Molnár *et al.*, 2011, Almli *et al.*, 2011), genuine and authentic (Tregear *et al.*, 1998, Guerrero *et al.*, 2009), part of an area's gastronomic heritage (Guerrero *et al.*, 2009), familiarity and the natural content (Pieniak *et al.*, 2009).

The relevance of the methodological approach proposed in this study is its ability to mimic how consumers react in "real life" when facing a novel/new product. When consumers face new/novel products in a retail outlet, they create expectations on the basis of their past experience and available information. The analysis of consumers' preferences following this experimental design (i.e. before tasting the product) is identified as "expected preferences" and are elicited taking into account consumers' choices. The range of products offered to consumers includes the existing ones in the market and the new ones in order to simulate a real purchasing situation. In a subsequent step, consumers taste the new/novel products and existing products and then they create a subjective "sensory experience" (consumer acceptance analysis). This eating experience in real life is crucial as it allows consumers to decide if they are willing to repurchase the product. After tasting the products, the decision to repurchase the product might be affected. Thus, the preferences analysis is repeated because the sensory experience may result in agreement or disagreement with what they expected and therefore the decision to repurchase the product will be different among them. The analysis of preferences at this point is identified as "experienced preferences". Therefore, we followed a combination of the preferences analysis (real willingness to purchase) and the

consumer acceptance (sensory liking). The complementarity of these analyses allowed us to analyze if the proposed products may reach successfully the market by comparing what consumers expect and what they experience after tasting the product.

For the choice sets construction, we put the different TPPs and ITPPs jointly with two conventional pork products that are actually sold in the markets but with two different qualities: a regular one with low market price (CONV) and a premium one with the high market price (PREM). Each choice set contains the TPP, the ITPP, the CONV and the PREM products categories that appear at different price combinations. A NONE option was also offered if consumers reject to purchase any products. Data collection for consumers' acceptance and preference (real choice experiment), was carried out for the same 120 consumers in each case study. A quota sampling approach was used stratified by gender and age. Consumers eligible to participate were over 18 years of age who regularly purchase food and beverages and having purchased and consumed the products proposed in the last month. Consumers were economically "compensated" for their participation by direct payment of money delivered at the end of the experiment. At the end of the whole experiment, the amount of the "unexpected payment" was paid to consumers to participate in the real purchasing scenarios of the "products".

Results and discussions

As can be seen in Figure 1, we first identified the consumer-driven definition of the Traditional Pork Products concept.

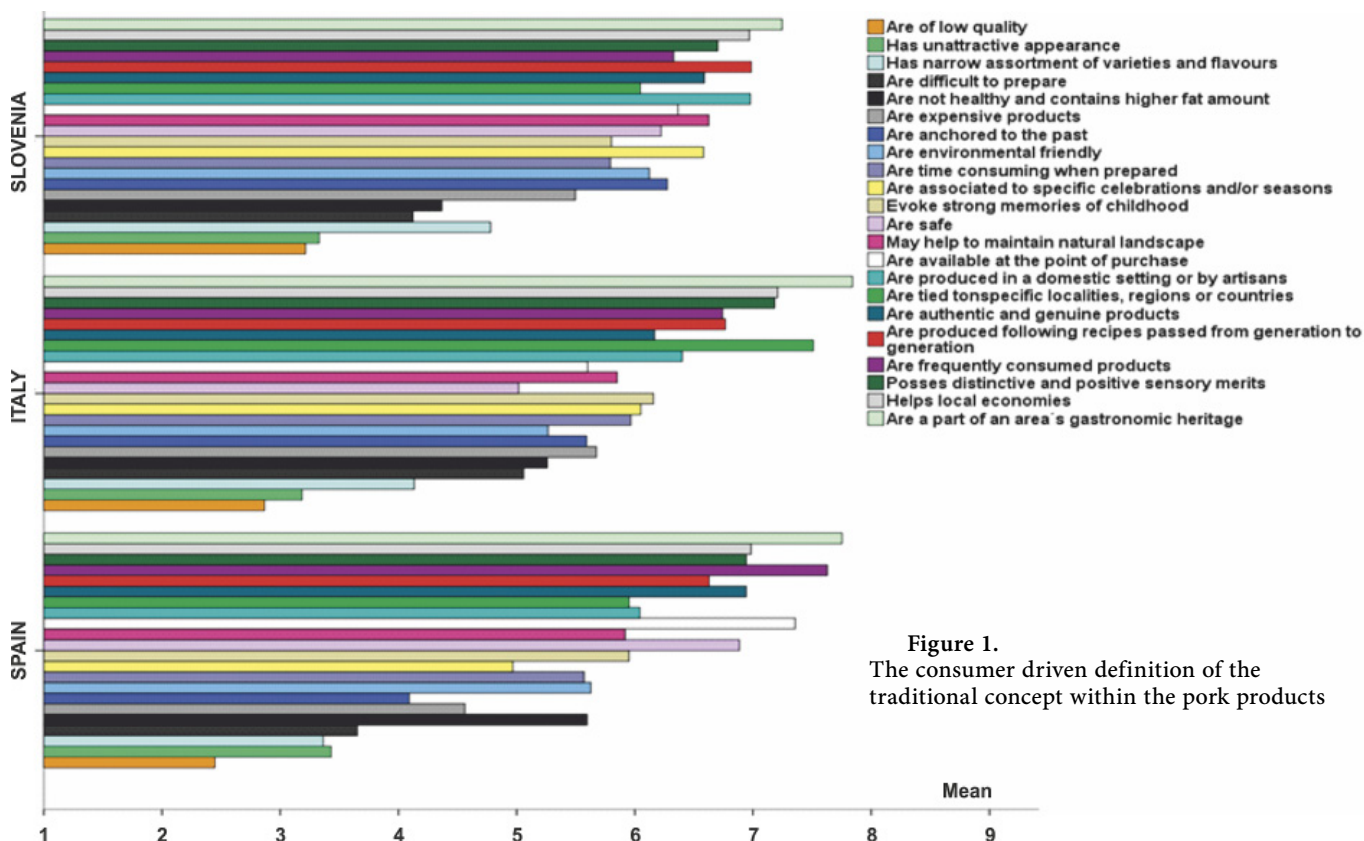


Figure 1. The consumer driven definition of the traditional concept within the pork products

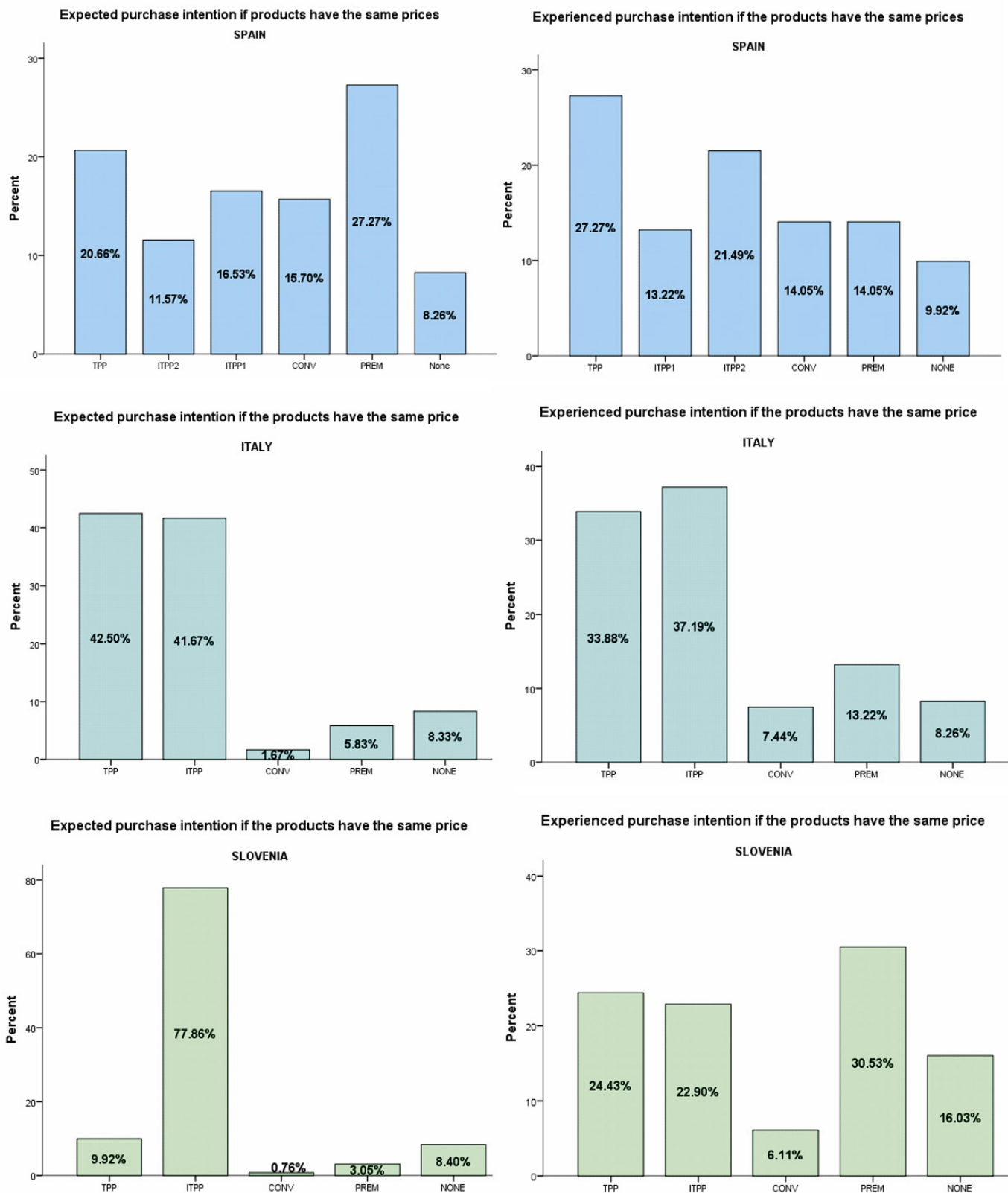


Figure 2. Expected and experienced purchase intention if the products have the same price

In general terms, the perception towards the Traditional Pork products were positive, showing high agreement level with the positive statements in all countries and low mean value for the negative statements. The traditional concepts in all countries was highly identified as part of area gastronomic heritage in agreement with the results found in Guerrero *et al.*, (2009). It was also recognised the role of this type of products in maintaining the local economies and the highest perceived quality they have. There was also an agreement on their handmade and artisanal production system. However, observed heterogeneity is found, especially regarding the safety aspect. While these types of products are considered safe in Slovenia and Spain, they received lower score in Italy. The same for the healthy perception, where in Slovenia were considered less healthy than in Italy and Spain. Further analysis is needed to understand this observed heterogeneity with regards to the socioeconomic and cultural variables.

The preliminary results regarding the expected and the experienced purchase intention extracted are presented in Figure 2. It is worth mentioning that these results were extracted from only one card from the DCE where the products appeared to have the same price.

As can be seen in Figure 2, two preliminary results can be retrieved. First, the percentage of respondents who showed the intention to purchase the TPPs and the ITPPs after the eating experience increased in Spain but decreased in Italy and Slovenia. Results from the sensory experiment may shed light on these finding. However, these results are beyond the objective of this paper. Second, the total percentage of purchase intention of the TPP and the ITPP in Italy and Slovenia was relatively high in comparison to the other products offered in the choice sets and also in comparison to the Spanish TPP and ITPP products. It seems that innovations regarding the expected purchase intention in Slovenia and Italy were more accepted in comparison to the Spanish case study. However, innovations regarding the experienced purchase intention were more accepted in Italy compared to Spain and Slovenia.

In all cases, results should be treated carefully because they represent only a part of the choice experiment results, and because of the relatively small samples in each case study. Furthermore, results should be interpreted as specific to each case study due to the difference in products, the price and innovations levels. Future research with large sample should be carried out to better shed light on conclusion with more significant results.

Conclusions

We analysed the “real” purchase intention towards traditional and innovative pork products before and after the eating experience. The preliminary results of the expected real purchase intention showed that the TPP and the ITPP are likely to be purchased if the decision is only based on the products' characteristics. However, the expected purchase intention decreased in Slovenia and Italy while increased in Spain after the eating experience. Further analysis is need from the sensory point of view to shed light on these results.

Reference

- Alfens, F. (2004) Stated preferences for imported and hormone-treated beef: Application of a mixed logit model. *European Review of Agricultural Economics*, 31(1), 19-37.
- Almli, V.L., Verbeke, W., Vanhonacker, F., Næs, T., Hersleth, M., 2011. General image and attribute perceptions of traditional food in six European countries. *Food Quality and Preference*, 22, 129-138.
- Balogh, P., Békési, D., Gorton, M., Popp, J., & Lengyel, P. (2016). Consumer willingness to pay for traditional food products. *Food Policy*, 61, 176-184.
- Cerjak, M., Haas, R., Brunner, F., Tomic', M., (2014). What motivates consumers to buy traditional food products? Evidence from Croatia and Austria using word association and laddering interviews. *Brit. Food J.* 116, 1726-1747.
- European Parliament and the Council of the European Union, (2012). *Agricultural Product Quality Schemes (COM (2010) 0733 – C7-0423/2010 – 2010/0353 (COD))*. European Parliament, Brussels.
- Grasso, S., Brunton, N. P., Lyng, J. G., Lalor, F., & Monahan, F. J. (2014). Healthy processed meat products - Regulatory, reformulation and consumer challenges. *Trends in Food Science & Technology*, 39(1), 4-17.
- Guerrero, L., Guàrdia, M.D., Xicola, J., Verbeke, W., Vanhonacker, F., Zakowska-Biemans, S., Sajdakowska, M., Sulmont-Rossé, C., Issanchou, S., Contel, M., Scaldedi, M.L., Granli, B.S., Hersleth, M., (2009). Consumer-driven definition of traditional food products and innovation in traditional foods. A qualitative cross-cultural study. *Appetite* 52, 345-354.
- Lancaster, K. (1966) A new approach to consumer theory. *Journal of Political Economy*, 74, 132-57.
- Loomis, J.B. (2014). Strategies for overcoming hypothetical bias in stated preference surveys. *Journal of Agricultural and Resource Economics*, 39(1), 34-46.
- Molnár, A., Gellynck, X., Vanhonacker, F., Gagalyuk, T., Verbeke, W., (2011). Do chain goals match consumer perceptions? The case of the traditional food sector in selected European Union countries. *Agribusiness* 27, 221-243.
- Murphy, J. J., Allen, P. G., Stevens, T. H., & Weatherhead, D. (2005). A meta-analysis of hypothetical bias in stated preference valuation. *Environmental and Resource Economics*, 30(3), 313-325.
- Napolitano, F.; Braghieri, A.; Piasentier, E.; Favotto, S.; Naspetti, S.; Zanolli, R. (2010) Effect of information about organic production on beef liking and consumer willingness to pay. *Food Quality and Preference* 21, 207-212.
- Pieniak, Z., Verbeke, W., Vanhonacker, F., Guerrero, L., Hersleth, M., (2009). Association between traditional food consumption and motives for food choice in six European countries. *Appetite* 53, 101-108.
- Rudawska, E.D., (2014). Customer loyalty towards traditional products – Polish market experience. *British Food Journal* 116, 1710-1725.
- Thurstone, L. (1927) A law of comparative judgement. *Psychological Review*, 34, 273-286.
- Toldra, F. & Reig, M. (2011). Innovations for healthier processed meats. *Trends in Food Science & Technology*, 22(9), 517-522.
- Tregear, A., Kuznesof, S., Moxey, A., (1998). Policy initiatives for regional foods: some insights from consumer research. *Food Policy* 23, 383-394.