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Are packaging and presentation format key attributes for cheese consumers?

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ABSTRACT

This paper analyses consumers' preferences for cheese packaging. The methodology used is a two-step approach. Firstly, focus groups were developed to identify the most relevant attributes and levels when choosing a cheese package. Secondly, a choice experiment was applied to analyse the influence of those attributes on consumers' buying decisions. Results show that consumers preferred a plastic package with rectangular shape, with a resealing system and unsliced format, with easy opening and providing additional information. However, cluster analysis generated three well-defined consumer segments based on gender, purchase frequency and family size, which showed different preference patterns. The results of this study would be relevant for cheese producers when developing new marketing strategies or redesigning cheese packaging formats.

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1. Introduction

In current competitive food markets, the role of packaging has changed due to increasing self-service and changing consumers' lifestyle (Kuvykaite, Dovaliene, & Navickiene, 2009). Product packaging presents an important opportunity for manufacturers and retailers to communicate with the consumer at the point of sale (Silayoi & Speece, 2007). Manufacturers should be aware of the potential of food packaging as a means to attract consumers' attention and therefore to boost the possibilities to sell the product (Ares & Deliza, 2010).

Purchasing intention is affected by how consumers perceive that the product, through its usage, can satisfy their needs. Within this context, packaging turns into an essential factor that helps consumers to decide whether to buy the product or not (Silayoi & Speece, 2007). A package has only a few seconds to make an impact and catch the consumer's eye and, in that short space of time, a product's packaging transmits to the buyer expectations about its characteristics, its usage and the sensations and experiences it will produce during consumption (Rebollar, Lidon, Serrano, Martin, & Fernandez, 2012).

Although the effect of packaging on consumer preferences has been often studied (Fernqvist, Olsson, & Spendrup, 2015; Mesías et al., 2013) one of the main challenges in this field of research is to determine how package characteristics affect consumer purchase behaviour. A choice experiment is one the most frequently used methodologies to estimate the effect of different attributes that constitute the structure of consumer preferences, and accordingly has been widely used in the food sector (Chen, Andres, & An, 2013; Mauracher, Tempesta, & Vecchiato, 2013).

A choice experiment is based on the idea that a good or a service is made up of attributes and that the total utility gained from a product or service is the sum of the individual utilities provided by the attributes of that good (Lancaster, 1991). Therefore, one of the main steps in a choice study is the selection of the attributes and levels that will define the analysed product. Due to the versatile nature of food packaging, it was considered that qualitative research and specifically focus group discussions could be an appropriate approach for the preliminary step (selection of the attributes and levels) of this study. Use of focus groups is one of the most frequently used methodologies when the preliminary stages of a research project are being developed (Eldesouky & Mesías, 2014) as in this research.

Within this framework, the objective of the present work was to evaluate consumer preferences for cheese packaging using a

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combined qualitative-quantitative approach with focus groups and discrete choice experiments.

2. Materials and methods

2.1. Focus groups

This technique is based on group dynamics with a moderator conducting a discussion; the discussion is stimulated by the exchange of comments amongst the participants (Galvez & Resurreccion, 1992). The main advantage of a focus group is that it allows and promotes more freedom of speech among the participants than other qualitative methods. During the development of the session, the participants decide how and how much they want to contribute, how to interact with the others and whether they want to change their minds during the discussion; all of this nurtures the qualitative information being generated (Dransfield, Morrot, Martin, & Ngapo, 2004).

Focus groups must consist of 6–12 participants (Malhotra & Birks, 2006), as any group of less than 6 is not deemed to easily promote group dynamics, whereas a group exceeding 12 participants may be hard to conduct and natural discussion may be difficult. In addition, the composition must be homogenous in terms of social and demographic factors, although this will depend on the nature of the study.

Taking into account the previous assumptions, four focus group sessions were developed in which 38 participants took part between December 2012 and January 2013. Attendants were chosen at the university campus in the city of Badajoz (Spain). Purchasing habits (regular food buyers, responsible for family shopping with cheese consumption in the household) were utilised as criteria for the recruitment of participants into the study by means of a convenience sampling, a non-probability method commonly used in qualitative research when the aim is to obtain an approximation to a specific topic (Kinnear & Taylor, 1991). Each focus group discussion was composed of eight to twelve participants, including women and men ranging from 27 to 55 years (53% men and 47% women). A broad range of packaged cheeses with different sizes, formats, milk types, ripening times, and other features, obtained from local supermarkets, were provided to the participants to encourage them to express their opinions.

The results of the focus group interviews led to the selection of the final attributes and levels shown in Table 1.

Table 1
Attributes and levels defined by means of focus groups.

Attributes	Levels
Packaging material	Plastic; cardboard
Packaging shape	Triangular; rectangular; round
Slicing format	Sliced; unsliced
Information provided	Mandatory information; additional information[a]
Easy to open	Easy open; not easy open[b]
Resealing system	With a resealing system; without a resealing system

[a] Additional information is non-mandatory information provided on the package such as consumption or storage advice, recipes, etc.
[b] Easy open package is a package that can be opened without using scissors or knives.

2.2. Choice experiment

Lancaster's theory (Lancaster, 1991) proposes that consumers make choices based on their preferences for attributes of goods. As a result, choices are determined by particular combinations of product attributes. In making choices, respondents make trade-offs between different attributes and attribute levels (James & Burton, 2003). In choice experiments, individuals are asked to choose their preferred alternative amongst hypothetically constructed scenarios, where each scenario is a function of the different levels of the attributes of a product. The output of the model provides information on the relative utility of the different attributes, the rate at which individuals are willing to trade off between attributes, and the total satisfaction or utility that respondents derive from the product (Van-Loo, Caputo, Nayga, Meullenet, & Ricke, 2011).

In this study, after the attributes and their levels were selected, they were combined to create hypothetical cheese packages that were presented to the consumers as a "choice set". Each choice set was composed of two hypothetical packages that participants were asked to select between (Option A and Option B) and a third option representing the no-choice option (Option C), with participants rating eight of these sets. A conditional logit model using the R Statistical Package (R Foundation for Statistical Computing, Vienna) was used for the statistical analysis of the responses obtained in the choice task.

The number of attributes and levels would lead to 96 ($2 \times 3 \times 2 \times 2 \times 2 \times 2$) possible combinations or profiles. Two orthogonal fractional factorial designs using SPSS v.19.0 statistical software (SPSS, Inc, Chicago, IL) were used to reduce the number of profiles so that the task would be more manageable for the respondents. This procedure produced 16 final profiles for each design. Once it was confirmed that there were no repeated products, one product was randomly chosen from each design, forming pairs, as suggested by Louviere, Hensher, and Swait (2000). An example choice set is shown in Fig. 1.

It was considered that it would be too burdensome to present all 16 cards to each individual, so they were divided into two sets of eight, and two survey versions were created, each with eight choice sets. Therefore, each respondent had only to evaluate eight cards. This number of choice sets is within the range of other studies using choice experiments (Mauracher et al., 2013; Realini et al., 2014) as quality of data tends to decline due to the fatigue that the respondents may suffer if they face a large number of choices (Adamowicz, Louviere, & Williams, 1994).

The choice experiment was carried out through an online survey. The study was developed in Extremadura (SW Spain) in March–April 2013. Participants were recruited via e-mail, using research databases created from previous consumer studies. The survey included questions involving the choice experiment and also other questions about socio-demographic characteristics and purchasing habits of the participants. The design of the sample was a random stratified sampling weighted in proportion to the population's sex and age in Extremadura. Although 360 questionnaires were collected, 74 had to be discarded, mainly for incomplete response. The maximum error was 5.9% for a 95% confidence level (K = 2). Table 2 shows the socio-demographic characteristics of the final sample compared with those of the population of Extremadura.

2.3. Cluster analysis

A k-means cluster analysis was used to allow a deeper study of consumers' preferences by identifying homogeneous subgroups of consumers showing similar preference patterns towards cheese packaging. The inputs used were the socio-demographic and purchasing habits variables of each respondent. The calculations were performed with the Cluster module of PASW statistics 18 for Windows (SPSS, Inc, Chicago, IL).