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DETERMINANT FACTORS AFFECTING THE POINT OF PURCHASE SELECTION: VALUATION AND PERCEPTIONS

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Abstract

The main purpose of this study is to assess the determinant factors for consumers' selection of a particular food grocery store. Data were obtained through a survey of 420 consumers responsible of food purchase in Barcelona. First, we explore why and where consumers decide to purchase their food using two Focus Groups. Second, we identify the determinant factors that can affect consumers' while choosing a point of purchase (POP) and focusing on a proposed decision using the Structural Equation Modeling (SEM). Third, we carried out on positioning the major retailers in terms of the most important attributes using the Analytic Hierarchy Process method (AHP). Our results show that the convenience in term of time and closeness is the most important factor in deciding where to purchase food. Regarding the POP valuation, results show that the most important attribute is the price followed by product availability, localization, private label, and promotions.

Key words: Point of Purchase (POP), Structural Equation Modeling (SEM), Analytic Hierarchy Process (AHP).





1. Introduction

Retailers are the final link between producers and consumers of goods in a traditional food chain structure. They perform an essential function in selecting, provisioning, and storing the produced goods and services. They also play an important role by providing information to consumers and making their purchase decision easiest.

Food distribution in Spain, as in other countries, has undergone a significant conversion in recent decades. This change has been mainly characterized by a shift from the traditional small business format toward more larger and consolidated supermarkets and hypermarkets (CNC, 2011). This transformation is occurring in a sector particularly relevant in the Spanish economy, in which the consequences of increasing the bargaining power of the large retailers in front of the other operators in the food chain are the subject of social concern. In Spain the food industry and beverage closed 2009 with net sales amounting to 84,600 million Euros. This number supposes 14% of total net sales in the industry and 8% of Spanish GDP, and positions it as the first industrial sector of the Spanish economy and the fifth in Europe (Hernandez, 2010).

The main purpose of the present paper is to understand and identify the determinants factors of consumers' selection of a particular food grocery store in Barcelona province. We look to understand consumers' decision and behavior in their purchasing process. This will allow us to place all determinant factors together in order to show a complete picture and try to weight the relative importance of each element in their final behavior.

To reach this main objective, several specific goals have been set out: 1) Exploring why and where consumers in Barcelona decide to purchase their food basket, 2) To find factors that can affect consumers' decision making process while choosing a point of purchase (POP), 3) To carry out a comparative evaluation of Point of Purchase (POP) competitors and positioning the various major retailers in terms of the most important attributes, 4) state Consumers classification regarding to their POP valuations. This work is the first attempt in Spain to analyze the POP selection. Many studies have focused on analyzing the attributes in product choice, but literature in Spain focused on POP selection is scarce.





2. State of the art

Since the classic study by (Martineau, 1958) defined store image as "the way in which the store is defined in the shopper's mind," considerable research has been devoted to the conceptual and empirical aspects of store image and its role in retail choice. Pricing is central to retail decision-making: "Nothing is more important in business than getting the pricing strategy right," (Hammel, 1990). (Milliman, 1982) had studied the effect of using background music on supermarket shoppers' behavior using multiple regression models. His study found that slower tempo stimulated an even slower pace than no music.

Applying a multinomial logit model, (Arnold and Stephen, 1983) found that among attributes that are responsible of store choice, they can be ordered as follow, convenient location, lowest prices, friendly stuff, pleasant environment, weekly specials, fastest checkout, and assortment. A field study was conducted by (Kerin *et al.*, 1992) in a large metropolitan area in USA to test the store shopping experience and consumer Price-Quality-Value perceptions through a phone survey of 1193 households. As founding they conclude that the perception of store experience and merchandise price are relatively more important than perceptions of store shopping experience and merchandise quality in forming value perceptions of a retail store.

Later, industry research suggests that location explains up to 70% of the variance in people's supermarket choice decisions (Progressive Grocer, 1995). (Sirohi *et al.*, 1998) had worked about store loyalty using a phone interview of 16,096. They specify a model to explain store loyalty intentions and other aspects relevant to shopper behavior as a function of the constructs. The empirical results from this latent variable structural equation model provide that the importance of service quality as an extrinsic cue in the formation of perceptions of overall merchandise quality for a supermarket retailer. In the same year, (Grewal *et al.*, 1998b) tested a structural model through a study at a major state university in USA. 309 respondents were given a questionnaire and a price-comparison advertisement. The findings were that store image has direct, positive relationship with purchase intention. Also, discount store retail may choose to concentrate on other factors of store image such as service, atmosphere, display, convenience and pricing. Finally, the negative effects of price discounts are counter-balanced by the positive effects of brand name and a brand's perceived quality.





(Rhee and Bell, 2002) had studied the inter-store mobility of supermarket shoppers. Their model is established in a discrete time hazard framework and estimated as random-effects probit. Data was collected from 548 households taking 88,945 shopping trips among five stores are used to calibrate the model. They find that state dependence is prevalent with nearly three quarters of the shoppers showing progressive attachment to their current main store. Interestingly, this finding is not simply driven by location (i.e., because shoppers are captive to a single store based on geographical distance). A year after, (Laroche *et al.*, 2003) tried to study a model of consumer response to two retail sales promotion technique through 250 face to face questionnaires in the greater metropolitan area of a North American city. For example, in the case of coupons and due to the specific nature of this type of sales promotions, information search plays an important role in shaping the process. On the other hand, for promotions like “two-for-one” involving less information search, this construct has no significant direct impact on the process, but rather an indirect impact, through cost/benefit evaluation.

Hypothesis of analysis

In order to select a POP, there are plenty of variables that can determine consumers’ decision of where to buy. In this context, it was recognized that there are other reasons in addition of the need of buying a simple physical good. In fact, there are various motivations for shopping which at the same time are influenced by several factors, many of them are related to consumers’ personal and social motivations and a few of them are directly associated to the purchase of products itself. It is therefore necessary for retailers to research and understand what makes shoppers to be highly satisfied.

An element generally highlighted as relevant affecting consumers POP decision making process is “convenience”. Convenience is derived from both retailer minimizing time costs and consumer maximizing shopping opportunities.

In the same context, when examining convenience seeking and product availability at the POP, time constraint appears as a relevant factor. That is the time required during the purchase can be measured in terms of product availability and duration seeking. A specific time constraint regulates the amount of information that can be processed (Bettman, 1979) and decreases demand for additional information (Bronner, 1982) causing lower amount of unplanned purchases (Iyer, 1989) and failure to make intended purchases (Park *et al.*, 1989).





Time availability impacts search activity in retail (Beatty and Smith, 1987), in-store browsing (Beatty and Ferrell, 1998), individuals' stress (Isenberg, 1981), and retrieval of "not well rehearsed memory" (Bettman, 1979) required for product/brand search (Park *et al.*, 1989).

We hypothesize that consumers can worsen their specific time constraint wasting time looking for products. And that these are likely to cause frustration and stress, representing a risk to POP fidelity or confidence, such as:

H1: A satisfactory convenience seeking stimulates the fidelity to a POP election.

Another element affecting consumers POP decision making process are "promotions". Price deals and special promotions have been used to attract consumers to a retail store (i.e., providing greater value via the discount) and to generate an increased level of store traffic (Grewal *et al.*, 1998; Lichtenstein and Bearden, 1989). Moreover, sales promotions are beneficial for retailers in several aspects: promotional variables such as in-store display (products expositions) and "two-for-one" (purchasing two articles for the price of one) are often used to trigger unplanned purchases (Inman *et al.*, 1990; McClure and West, 1969). Finally, sales promotions accelerate the number of shopping trips to the store (Walters and Rinne, 1986).

According to (Blattberg and Neslin, 1990) the most distinguishing characteristic of sales promotion is their emphasis on getting the customers to take action. Moreover, it stresses time availability. In fact, it has been said that generally all promotions can be seen as restrictions since the promotional offer is only for a fixed time period (Inman *et al.*, 1997). From this point derives the second hypothesis:

H2: As more importance consumers place on convenience seeking more interested would be on promotions.

It is true that promotions can encourage consumers to choose a POP, but sometimes would also have a negative influence. For example; (Grewal, *et al.*, 1998) suggested that frequent discounting might reduce perceptions of value. Later, (Gedenk and Neslin, 1999) demonstrated that, although price reductions had positive effects on current purchases, they also had a negative effect on subsequent brand preferences. Also, consumers become more familiar with the strategy of expiration date-based pricing (EDBP) of some POP and its negative effects decline, which implies insignificant long-term effects (Theotokis *et al.*, 2012). Therefore, we can make the following hypothesis:



H3: POP promotions can represent a risk in terms of POP fidelity/confidence.

H4: Promotions have a negative effect on perceived quality's perception.

Perceived quality is defined as the consumer's judgment about the extent of superiority or excellence of the product (Zeithaml, 1988). This is a user-based approach as suggested in Garvin (1983). It is widely believed that consumers use cues to infer quality (Zeithaml, 1988; Olshavsky, 1985). These cues typically are classified as intrinsic or extrinsic (Olson and Jacoby, 1972). Intrinsic cues involve the physical composition of the product (for example, flavor or and color in beverages) while extrinsic cues include other, generally controllable, aspects (for example, price and brand name). Extrinsic cues are relevant in a supermarket setting for several reasons. First, the evaluation of intrinsic cues by consumers may require more time and effort than the consumer perceives is worthwhile (Zeithaml, 1988). Most of the research on extrinsic cues has focused on price, brand name, store name and level of advertising (Dodds et al., 1991; Mazursky and Jacoby, 1985; Nelson, 1974; Rao and Monroe. 1989). In the case of Spain, private label had an important weight in the ten last years. In 2009, the market share of private label in the food sector reached 33.7% (CNC, 2011) from that the importance of each POP's quality department. Therefore we state that:

H5: There is a positive relationship between perceived quality and POP valuation.

Confidence or fidelity is nearly always regarded as a key concern in the structuring of business relationships (Tsay, 2002). Concerning point of purchase, lack of confidence can be noticed in different levels. If we start with prices' confidence, it will be essential to pay attention to price comparison between different points of purchase. In other words, consumers look for price warranty. Because low-price guarantees signal low prices, they can reduce consumers' perceptions of risk, limit their search intentions, and raise their purchase intentions, if signal credibility is not an issue (Biswas *et al.*, 2002, 2006; Jain and Srivastava 2000; Kukar-Kinney and Walters 2003; Srivastava and Lurie 2001). Sometimes promotions can stimulate consumers' feeling of risk, because they make relation between promotion, expiration date and perceived quality. As (Kukar-Kinney *et al.*, 2011) found that promotions can be denied due to the risk of price unfairness.

There are various other forms of distrust at the point of purchase. For example, the risk of inappropriate product manipulation from the wholesale to the retailer. Moreover, security inside the point of purchase. Many consumers are afraid regarding the possibility of being robbed inside the point of purchase. Finally, sometimes they are afraid about a not adequate use of their credit card information. From this we can hypothesize that:

H6: The less I the confidence (the higher is the risk) perceived by the consumer towards a specific POP, the more negative is the POP valuation.

3. Material and Methods

3.1. Data Source

Two main types of data have been used in this research. First, *secondary data* were collected from the scarce available literature on this issue to get an idea about the food distribution market in Spain. Additionally, *Instituto Nacional de Estadística*, *Ministerio de Medio Ambiente y Medio Rural y Marino* and *Alimarket* were consulted in order to have an idea about the characteristics of the retailers in Spain and in Barcelona.

Second, *primary data* were collected; first a focus group was realized to deal with the first specific objective of this study and a structural questionnaire has been carried out using the quota sampling procedure. A survey was conducted during the period going from 5 April to 8 May 2013. A total of 420 questionnaires were implemented in Barcelona and its metropolitan area.

3.2. Methodology

Figure 1 explains the different methodology used in this paper.

3.2.1 Focus Group

Focus Group is a helpful tool in exploring the questions related to consumers' purchase decision-making process. For many marketers, the focus group method represents a standard procedure in order to deal with new product development and packaging assessment. In fact, a large percentage of commercials and advertisements have been influenced and shaped using focus group research. Our focus groups were conducted on 23 January 2013 with people responsible for the household purchase. The meetings were part of a wider consultation with members of the public. The focus groups were set up specifically to find out about consumer



behavior in the moment of purchasing and also to better understand how they select the (POP). The group meetings were developed according to Morgan *et al.* (1993) and Morgan (1998a, b). In both groups of study, a team meeting room with voice recording was employed. The group meetings lasted approximately one hour. Finally, the topic of the discussion was based from the more generic "shopping habits in general" to finish assessing the characteristics of the choice of point of purchase.

3.2.2. Structural Equation Modelling: SEM

Structural equation modeling (SEM) is a comprehensive statistical approach for hypotheses testing about relations among observed and latent variables, (Hoyle, 1995). The goal of SEM analysis is to determine the extent to which the theoretical model is supported by sample data. There are two major types of variables: latent variables and observed variables. Latent variables (constructs or factors) are variables that are not directly observable or measured, therefore inferred from a set of variables that we do measure using tests, surveys, and so on. The observed, measured, or indicators variables are a set of variables that are used to define or infer the latent variable or construct (Schumacker and Lomax, 2004).

Like any other statistical approach, structural equation modeling (SEM) has several steps which have to be reached. According to (Jöreskov and Sörbom, 1996; Muller, 1996; Cheung and Rensvold, 2002; Suyapa, Vermunt and Magidson, 2005; Lee, 2007 and Schreiber, 2008) there are six essential steps:

- **Defining individual constructs:** The first step is to theoretically define the constructs, conducting a pretest to evaluate the item. A confirmatory test of the measurement model is conducted using confirmatory factor analysis (CFA).
- **Developing the overall measurement model:** The measurement model is also known as path analysis. Path analysis is a set of relationships between exogenous and endogens variables. This is shown by the use of an arrow. The measurement model follows the assumption of unidimensionality. Measurement theory is based on the idea that latent constructs cause the measured variable and that the error term is uncorrelated within measured variables.



- **Design the study to produce the empirical results:** In this step, a measurement model is identified after performing confirmatory factor analysis. The outcome relates, on one hand, observed indicators with the exogenous latent variables:

$$\mathbf{x} = \Lambda_{\mathbf{x}} \xi + \delta \dots\dots\dots (1)$$

where \mathbf{x} is a $q \times 1$ vector of observed exogenous or independent variables, $\Lambda_{\mathbf{x}}$ is a $q \times n$ matrix of coefficients of the regressions of \mathbf{x} on ξ , which is an $n \times 1$ random vector of latent independent variables and is δ a $q \times 1$ vector of error terms in \mathbf{x} . Furthermore, it is assumed that δ is uncorrelated with ξ .

On the other hand, observed indicators are related to endogenous constructs:

$$\mathbf{y} = \Lambda_{\mathbf{y}} \eta + \varepsilon \dots\dots\dots (2)$$

where \mathbf{y} is a $p \times 1$ vector of observed endogenous or dependent variables, $\Lambda_{\mathbf{y}}$ is a $p \times m$ matrix of coefficients of the regressions of \mathbf{y} on η , which is a $m \times 1$ random vector of latent dependent variables and ε is a $p \times 1$ vector of error terms in \mathbf{y} . Furthermore, it is assumed that the ε is uncorrelated with η .

- **Assessing the measurement model validity:** Assessing the measurement model is also called CFA. In CFA, a researcher compares the theoretical measurement against the reality model. The result of the CFA must be associated with the constructs' validity.
- **Specifying the structural model:** In this step, structural paths are drawn between constructs. In the structural model, no arrow can enter an exogenous construct. A single-headed arrow is used to represent a hypothesized structural relationship between one construct and another. This shows the cause and effect relationship. Each hypothesized relationship uses one degree of freedom as shown in equation 3.

$$\eta = \beta \eta + \Gamma \xi + \zeta \dots\dots\dots (3)$$

where β is a $m \times m$ matrix of coefficients of the η vector of dependant variables in the structural relationships, Γ is a $m \times n$ matrix of coefficients of the ξ vector of independent variables in the structural relationship, and ζ is a $m \times 1$ vector of errors.

- **Examine the structural model validity:** In the last step, a researcher examines the structural model validity. A model is considered a good fit if the value of the chi-square (χ^2) test is insignificant, and at least one incremental fit index like comparative Fit index (CFI), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI),





Normed-Fit-Index(NFI) and Non Normed- Fit-Index(NNFI) and the Akaike Information Criterion (AIC). Then one badness of fit index like Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR) meets the predetermined criteria.

3.2.3. Analytic Hierarchy Process – AHP

The Analytic Hierarchy Process (AHP) is a multi-criteria decision making (MCDM) method that helps the decision-maker facing a complex problem with multiple conflicting and subjective criteria, (Ishizaka and Labib, 2009). Numerous papers have classified the AHP success stories in very different fields (Zahedi 1986; Golden, *et al.*, 1989; Vargas 1990; Saaty and Forman 1992; Forman and Gass 2001; Omkarprasad and Sushil 2006; Ho 2008; Liberatore and Nydick 2008; kallias *et al.*, 2011). The oldest reference we have found dates from 1972 (Saaty, 1972). After this, a paper in the Journal of Mathematical Psychology (Saaty, 1977) precisely described the method.

The AHP has been proposed in recent literature as an emerging solution approach to large, dynamic, and complex real world multi-criteria decision-making problems (Albayrakoglu, 1996; Carlsson and Walden, 1995). The AHP has been used in a wide variety of complex decision making problems, such as the strategic planning of organizational resources (Saaty, 1990); the evaluation of strategic alternatives (Yang and Lee, 1997).

The analytic hierarchy process (AHP), developed at the Wharton School of Business by Thomas Saaty in 1980 (Saaty and Vargas, 1980), allows decision makers to model a complex problem in a hierarchical structure showing the relationships of the goal, objectives (criteria), sub-objectives, and alternatives, etc (Belton and Stewart 2002; Figueira, Greco *et al.*, 2005), AHP is based on six steps : define the unstructured problem, developing the AHP hierarchy, pair-wise comparison, estimate the relative weights, check the consistency, obtain the overall rating, (Lee *et al.*, 2008).

Step 1: Define the unstructured problem

In this step the unstructured problem and their characters should be recognized and the objectives and outcomes stated clearly.



Step 2: Developing the AHP hierarchy

The second step in the AHP procedure is to decompose the decision problem into a hierarchy that consists of the most important attributes and elements of the decision problem (Borouhaki and Malczewski, 2008).

Step 3: Pair-wise comparison

In order to implement the AHP, one needs to carry out a survey where individuals are asked to make two types of pairwise comparisons: (a) a pairwise comparison of the levels within each attribute; and (b) a pairwise comparison of the attributes. First, the respondent has to indicate which of the two elements the respondent prefers. Then a nine-point scale is used to measure the strength of this preference by means of verbal judgments. For each element of the hierarchy all the associated elements in low hierarchy are compared in pair-wise comparison matrices as follows:

$$S_k = \begin{bmatrix} a_{11k} & a_{12k} & \cdots & a_{1jk} \\ a_{21k} & a_{22k} & \cdots & a_{2jk} \\ \cdots & \cdots & a_{ijk} & \cdots \\ a_{i1k} & a_{i2k} & \cdots & a_{NNk} \end{bmatrix} \quad (4)$$

Where: S_k comparison pair-wise matrix, a_{ijk} represents the value obtained from the pairwise comparison between attribute/level i ($i \in N/i \in P$) and attribute/level j ; ($j \in N/j \in P$) for each individual k . The fundamental properties of this comparison matrix are: (a) if $a_{ijk} = x$ then $a_{jik} = 1/x$ (reciprocal comparison); (b) if characteristics i and j are judged to be of equal relative importance then, $a_{ijk} = a_{jik} = 1$ (homogeneity); and (c) all the elements along the main diagonal take a value of one ($a_{iik} = 1 \forall i$).

Step 4: Estimate the relative weights

Some methods like geometric mean method are used to calculate the relative weights of elements in each pair-wise comparison matrix. The relative weights (W) of matrix A is obtained from following equation:

$$S_k \times W = \lambda_{\max} \times W \quad (5)$$

Where: S_k = comparison pair-wise matrix ; λ_{\max} = the biggest geometric mean of matrix S_k .

Step 5: Check the consistency

In this step the consistency property of matrices is checked to ensure that the judgments of decision makers are consistent. For this end some pre-parameter is needed.

Consistency Index (*CI*) is calculated as:

$$CI = \frac{\lambda_{max} - n}{n-1} \quad (6)$$

The consistency index of a randomly generated reciprocal matrix shall be called to the random index (*RI*), with reciprocals forced. An average *RI* for the matrices of order 1–15 was generated by using a sample size of 100 (Nobre *et al.*, 1999). The table of random indexes of the matrices of order 1–15 can be seen in (Saaty, 1980). The last ratio that has to be calculated is *CR* (Consistency Ratio). Generally, if *CR* is less than 0.1, the judgments are consistent, so the derived weights can be used. The formulation of *CR* is:

$$CR = \frac{CI}{RI} \quad (7)$$

Step 6: Obtain the overall rating

In last step the relative weights of decision elements are aggregated to obtain an overall rating for the alternatives as follows:

$$w_i^s = \sum_{j=1}^n w_{ij}^s w_j \quad , \quad i = 1, \dots, n \quad (8)$$

Where w_i^s = total weight of site i ; w_{ij}^s = weight of alternative i associated to attribute j ; w_j = weight of attribute j ; m = number of attribute ; n = number of site.

3.3. Questionnaire

A structured questionnaire has been carried out consisting of four main parts:

- The first section of the questionnaire focused on the food purchase behavior in Barcelona. This section contains information about food purchase frequency, means of transport while purchasing food, person responsible of the act of purchasing, place of purchase, and some general attributes valuating the POP.
- The second section intended to measure the main indicators related to the most important determinants of POP choice. To deal with this issue different scales has been applied.
- The third section is focused on the seven major retailers' valuation in Barcelona.
- Socio-demographic questions were identified in order to determine consumers' profiles.

The questionnaire was administered to a sample of consumers responsible for their food household purchase, aged between 20 and 69 years and living in the metropolitan area of Barcelona. We used the quota sampling procedure and stratified by gender, age and nationality. Different questionnaire drafts have been designed and pre-tested before obtaining



the final version. From the beginning 523 questionnaires were realized from which 32 ones were not valid and 71 participants were not responsible of their household food purchase. The final sample size was 420 respondents with a sampling error equal to 4.78%. The consumer survey was conducted between April 5 and May 8 in the metropolitan area of Barcelona (Barcelona city, Castelldefels, etc.). The average time allocated to each survey was about 15 to 20 minutes

3.4. Measurements

The questionnaire included at least three items for each construct of the theoretical model, as it is recommended for the structural equation modeling approach (Hair et al, 1999). All behavioral intention questions were measured by means of a seven-point Likert scale. Seven items were considered for valuing individual's POP valuations. Next, participants were asked to declare their degree of agreement about if promotions are beneficial or no. Additionally, we measured the importance of the time spending seeking products. Furthermore, the possibility of risk or the degree of loyalty was also considered.

The construct, attitudes towards POP valuation, was measured through seven statements related to checkout lines existence, product availability, around, localization, private label, prices, and promotions (Millman, 1982; Kerin et al., 1992; Suri and Monroe, 2003; D'andrea et al., 2006; Grewal and Levy, 2007; and Xia et al, 2010). It was valued by means of a nine-point Likert scales ranging from 1 (not important) to 9 (very important). Later, we rescaled this nine-point Likert to seven-point scales. Moreover, we had tried to study the negative effect of promotions which were measured by five phrases adopted from the study carried out in USA about promotions fairness and about promotions denied (Kukar – Kinney et al., 2011; Xia et al., 2010). The statement related to the promotions considers consumers views towards: – if serve to deceive consumers – if its goal is to get more sales – if are poorly explained – if allow to I buy top brands and if are used to sell products close to their expiry dates - measured in a seven point Likert scale from 1 (totally disagree) to 7 (totally agree).

The next construct considered was quality and it was measured by an evaluation of different POP departments. It consisted on the valuation of nine quality dimensions phrased as, “General product quality, meat section quality, deli section quality, bakery section quality, fish section quality, frozen food section quality, dairy section quality, beauty section quality,





private label section quality (Kukar – Kinney et al., 2012). Items were measured by a seven-point scale from deficient to excellent.

Following (Kukar-Kinney et al., 2009; Arnolds and Reynolds 2012) convenience seeking was measured with four items: “Shopping in the shortest possible time”; “Devote little effort when I shopping”; “When I go shopping, I want to find what I am looking for in the shortest possible time” and “I do not care to spend time choosing quality foods”. The four items were measured on a seven-point Likert scale, ranging from totally disagrees to totally agree. Finally, fidelity_confidence was considered by including general statements related to products quality and expiration date, prices, security, regular POP, payment (Sirohi et al., 1998; Alam et al., 2012; Dutta et al., 2012; Theotokis et al., 2012). Statements were measured with a seven point scale; from totally disagree to totally agree.

3.5. AHP Determinant factors

As we mentioned above, The AHP has been carried out to realize a comparative evaluation of (POP) competitors and positioning the various major retailers in terms of the most important attributes. We seek to determine generally what are the attributes more considered in the POP choice and how consumers value their POP through these attributes.

The data used in this analysis was obtained from a face-to-face questionnaire with consumers responsible of food purchase during the period from 5 April to 8 May 2013. Each questionnaire solicits extensive information on point of purchases characteristics and their attitudes and perceptions toward food purchase. In the empirical implication of the AHP, the first step is to clearly define the main attributes that consumers take into consideration when choosing a POP. In our case there are seven attributes: around, existence of checkout lines, localization, prices, products availability, promotions, and private label (Millman, 1982; Kerin et al., 1992; Suri and Monroe, 2003; D’andrea et al., 2006; Grewal and Levy, 2007; and Xia et al., 2010). Then, seven alternatives are fixed. These seven alternatives represent the main food retailers in Barcelona which are: Alcampo, Carrefour, Día, El Corte Ingles, Eroski/Caprabo, LiDL, Mercadona as we see in figure 3.

Each respondent has to rate in a comparative way all the attributes separately offered in the 7 establishments cited above. We had used a nine Likert scale which 1 and 9 define the



extremities. It is worth mentioning that participants who don't buy in some POP were asked to answer in all cases as they would perceive the characteristics of the different retailers.

Once, we have all the data we tried to calculate the pairwise matrix. This allows us to obtain a pairwise comparison between the seven establishments. This comparison is transformed for each attribute. Finally we obtained 21 pairwise comparisons, to do the comparison, a scale transformation has been done based on the calculation of the difference between the scale scores ($Sc_{ik} - Sc_{jk}$) allowing approximating the difference of the "relative importance" between criterion (Kallas and Gil, 2011), where Sc_{ik} are the scores of criteria for individual k as follow:

a. If $Sc_{ik} \succ Sc_{jk} \rightarrow \hat{a}_{ij} = [(Sc_{ik} - Sc_{jk}) + 1]$, later we can obtain $\hat{a}_{ji} = 1 / \hat{a}_{ij}$

b. If $Sc_{ik} \prec Sc_{jk} \rightarrow \hat{a}_{ji} = [(Sc_{jk} - Sc_{ik}) + 1]$, later we can obtain $\hat{a}_{ij} = 1 / \hat{a}_{ji}$

where a_{ij} are the judgment commented in the Saaty matrix (equation 4).

4. Results

4.1. SEM

A confirmatory factor analysis for all constructs was performed, that is: 1) POP evaluation; 2) Promotions; 3) Quality; 4) Convenience seeking; and 5) Fidelity/confidence, assuming all error to be uncorrelated.

Regarding the internal consistency of the model, we can state that it is robust, including composite reliability (which must be > 0.7), internal consistency reliability, measured by Cronbach's α , (which must be about 0.7), extracted validity (which must be > 0.5) and discriminant validity (correlations among constructs < 0.85) (Hair et al., 1999 and Bagozzi and Yi, 1988). Moreover, for every construct, all composite reliabilities are greater than 0.7 and all Cronbach's α are over 0.7 but for construct C5 (Fidelity/confidence) which is 0.5, thus we can say that reliability is acceptable. Regarding the variance extracted, it is 0.5 or higher for all cases. Since the correlations among latent factors do not exceed 0.85, in any case, it can be stated that discriminant validity has been accomplished too.

The model meets the widely accepted goodness of fit standards indicating that the conceptual model satisfactory fits the data. However, it must be pointed out that the chi-square statistic was significant and the Normed chi-square (NC) $NC = X^2 / df = 3.45$ is about 3, demonstrating a good model fit, as mentioned in (Bollen, 1989) notes that values of

the NC of 2, 3 or even as high as 5 have been recommended as indicating reasonable fit. The Root Mean Square Error of Approximation (RMSEA) is 0.077, which is well inside the 0.05 – 0.08 limit interval offered by (Hair et al., 1999; Kline., 2005). The goodness-of-fit (GFI) was 0.92, the Comparative-Fit Index (CFI) 0.90, the Normed-Fit Index (NFI) 0.89 and the Non-Normed-Fit Index (NNFI) 0.89, all were greater than 0.90 with the exception of (NFI) and (NNFI) which was 0.89. The last step in the modeling process consists of estimating the structural theoretical model. Estimations were conducted using Lisrel 8.8 statistical software package.

As it can be observed, the correlation analysis of latent constructs shows a significant and strong positive correlation between POP evaluation and quality ($r=0.60$, $p<0.001$), and a medium positive correlation with fidelity/confidence ($r=0.45$, $p<0.001$). Quality is also found to be positively high correlated with promotions ($r=0.70$, $p<0.001$). Promotions was found to be high correlated with fidelity/confidence and convenience seeking respectively ($r=0.64$, $p>0.001$); ($r=0.59$, $p>0.001$). Only convenience seeking was correlated with fidelity/confidence with a correlation among constructs is more than 0.85 ($r=0.95$, $p>0.001$).

Following the results of the measurement model, the proposed theoretical causal relationships have been analyzed using Lisrel 8.8 statistical program. In order to perform the analysis and estimate the models, we use the Weighted Least Squares (WLS) method rather than Maximum Likelihood (ML) which is based on the assumption of multivariate normality distribution of data. In our case, we had used ordinal. Under such circumstances the WLS provides more accurate parameter estimates and a model fit that is more robust to ordinal type and non-normality (Mîndrila, 2010).

We aim to explain POP choice by four endogenous constructs (POP valuation, Fidelity/Confidence, quality and promotions) and only one exogenous construct (convenience seeking). The overall fit of this second model reveals an χ^2 value of 1380.44 with 400 degrees of freedom and a normed χ^2 of 3.45. The CFI is about 0.92 which is good and the RMSEA is 0.075, which is less than 0.8. Furthermore difference of the chi-squares values, The AIC is 1501.20 lower than the AIC for the CFA model which was 1504.24 which means that there is improvement of model fit.

The obtained standardized coefficients for the additional hypothesized paths are all significant. Therefore, POP valuation are explained by both quality (POP valuation/Quality =



0.45, $p < 0.001$) and Fidelity_Confidence (POP valuation/ Fidelity_Confidence = 0.26, $p < 0.001$). As both coefficients are positive, both hypothesis 5 and 6 are supported by the data. Hypothesis 3 is supported as the path between promotions and Fidelity_Confidence is positive and statistically significant (Fidelity_Confidence / Promotions = 0.12, $p < 0.001$).

Furthermore, several of the path estimates obtained in the models considers only direct effects which represent hypothesis 1 and hypothesis 2. For instance, the relationship between convenience seeking and promotions (Promotions/Convenience seeking = 0.65, $p < 0.001$) is positive and statistically significant which supports H2. Also, the relationship between convenience seeking and fidelity_confidence (Convenience seeking/ Fidelity_Confidence = 0.88, $p < 0.001$) as hypothesized in H1 is positive and statistically significant, so both H1 and H2 are supported.

Nevertheless, the relationship between promotions and quality despite it is positive and statistically significant (Quality/Promotions = 0.77, $p < 0.001$) H 4 will be rejected because we were waiting for a negative coefficient (see figure 2).

4.2. AHP The determinant factors of POP selection

As noted above, the AHP allows weights to be obtained by assigning each individual to their preferred attributes and their levels using a geometric mean criterion. The result of the aggregation of weights for the seven attributes (w_{A1} , w_{A2} , w_{A3} , w_{A4} , w_{A5} , w_{A6} , w_{A7}) across subjects are shown in graphic 1 below, where CR values for all respondents reached as maximum 16%.

These results suggest that the "prices" attributes is the most important with an aggregate weight of 19.26%. The "product availability" attribute occupies second position with an aggregate weight of 18.87%. Then, "localization" attribute occupies third position with an aggregate weight of 17.62%. In the fourth position, we found that "private label" attribute has an aggregate weight of 12.35%. "Promotions" and "existence of checkout lines" attributes rate the fifth and the sixth rang with aggregates weights almost equal respectively 11.34% and 11.32%. In last position we found the "around" attribute with an aggregate weight of 9.23%.

Results from weighting attributes' levels are summarized in table 1. As can be seen, there are differences in relative ($w_{Ln,p}$) weight for levels. As a general view that Alcampo doesn't occupies any leader position but Carrefour is best perceived by consumers in the point of products availability with an aggregate weight of 17.09%. Día supermarket has the highest



relative importance in terms of existence of checkout line with an aggregate weight of 13.51%. El Corte Inglés was leader for both attributes around and private label with aggregates weights respectively 18.44% and 16.86%. Participants also had perceived that Eroski had the well appropriate prices with an aggregate weight of 16.92%. In the case of localization attributes LiDL is considered as the most close one to the consumers with an aggregate weight of 20.56%, and finally the food retailer chain Mercadona is classified as the best option on the term of promotions with an aggregate weight of 24.32%.

Respondents segmentation according to the attributes' importance

A key question related to the heterogeneity of the relative importance of respondents was analyzed. From the different segmentation methods, we applied the K-means cluster technique (Villardón *et al.*, 2007) in order to determine respondents segments according to their relative importance of the determinants factors of the POP choice.

Given the sample size, three clusters have been chosen (in the K-means method, it is necessary to impose the number of clusters a priori). Furthermore, three clusters may be sufficient to discriminate between those consumers consistently more and less satisfied with the information. Segmentation variables used are described in Table 2. This table also presents for each cluster, the percentage of individuals who are positioned in each opinion regarding each of the segmentation variables. Also applied a chi-square test to more accurately define which of these variables are what really are discriminating against individuals.

Respondents that belong to the **first cluster** (16% of the sample) show a preference toward a more pleasant surroundings and retailers brands. The members of this segment highlight the relevance of the corporative image perceived of the POP (brands, infrastructures and facilities) in their decision of choice of POP. In the **second cluster**, (54% of the sample) is formed by individuals who believe that prices, promotions and location are important factors to decide where to purchase. They clearly stated a preference for saving money, reducing costs to arrive to the POP. The **third cluster** represents 30% of the sample. This group of consumers looks mainly for saving time during the purchasing process. They show importance for the presence of different checkout lines and where all the products are available to avoid repeating the purchase and loose time moving from to another store.





Finally, considering these characteristics, the first cluster can be identified as demanding for "*welfare and enjoyment*", the second "*economy seekers*" and the third cluster "*time saver respondents*".

To complete the Cluster analysis, it is important to identify the socio-demographic profile and buying habits of each cluster or consumer segment. Results (appendix 3) showed no significant differences with respect to postal code, nationality, gender, age, marital status, employment status, purchase food frequency, responsibility of purchasing, or client card. On the other side, five variables identify significantly clusters' profiles which were education level, monthly income, transport mean, main purchasing place, and the monthly budget spent for food.

Respondents of Cluster 1 have secondary education level (37.7%) with household monthly income more than 2,100 € (44.9%) who never set a budget before going to purchase food. For purchasing, they use particular car (55.1%) and the more visited retailers are Alcampo (50%) and El Corte Inglés (66.7%).

Cluster 2 represents participants who have the highest percent of primary education level (18.1%). They have a household monthly income less than 1.500 € (47.4%) and they usually set a budget before going to purchase food respectively (64.6%). For purchasing they go on foot (51.1%) and the more visited stores are LiDL (75%), Día (70.6%), Eroski (60.3%) and Mercadona (58.9%).

Cluster 3 involves consumers which higher education level (university education with 60.8%). They have a household monthly income more than 2.100 € of (49.6%) and never set a budget before going to purchase (53.6%). For purchasing they go on foot (53.6%) and the more visited stores are Consum (52.2%) and convenience stores (43.1%), this cluster is a little bit a mixture between cluster 1 and 2.

5. Conclusions

This research work departs from three main motivations. The first question considered in a qualitative way why and where consumers purchase. This has been done through two focus groups (Morgan 1988, 1993). The second question looks at the behavioral factors that can affect consumers' while choosing a POP through structural equation modeling (Peckham, 1963; Grewal *et al.*, 1998; Inman *et al.*, 1997; Theotokis *et al.*, 2012; Dodds *et al.*, 1991; Kukar-Kinney *et al.*, 2011). Finally, the third question carries out a comparative valuation of





POP competitors and positioning the various major retailers in terms of the most important attributes through Analytic Hierarchy Process (Saaty, 2001; Saaty and Peniwati, 2008).

✓ ***Finding factors that can affect consumers' decision process when choosing a POP***

This part detected the important role of consumers' quality perceptions as a key element for consumers when deciding the POP. Furthermore, quality perceptions are positively defined by promotions (directly) and convenience seeking (indirectly). That is consumers do not value the quality itself but also quality adapted to their specific needs. In addition of the quality factor, we also noticed that the level of confidence or fidelity that consumers have towards a POP do also influence the final valuation of the retailer. That is, as more confidence less risk perception and better POP valuation. Simultaneously, convenience seeking plays a relevant role on defining both confidences towards the POP and promotions perception. Therefore convenience seeking is an indirect but important factor on building consumers POP valuation.

From these results a clear marketing recommendation emerges: retailers' communication strategy must relate the good quality of their products with attractive promotions and purchase facilities (that is products must be easy to found and trustfully). That is it must convince consumers of: 1) the high quality promoted products 2) the availability of what consumers need in the way that they need it 3) that provide an easy and safe way of buying good quality products.

✓ ***A comparative valuation of POP competitors***

The objective of this section was to carry out a comparative evaluation of POP competitors and positioning the various major retailers in terms of the most important attributes. AHP results suggest that when we ask respondents about a general valuation of POP, they classify the seven attributes as follow from the most important to the not important. We found "prices"; "product availability"; "localization"; "private label"; "Promotions"; "existence of checkout lines"; and "around".

Through a cluster analysis three groups were identified. The ***first cluster*** shows a preference toward a more pleasant surroundings and retailers brands. The ***second cluster*** is formed by individuals who believe that prices, promotions and location are important factors





to decide where to purchase. The *third cluster* look mainly for saving time during the purchasing process.

✓ **Limitations and further research lines**

The main limitation for the present study was time constrain. These thesis aimed at analyze the POP election from a multidisciplinary point of view. This objective requires an extended questionnaire not easy to implement. Therefore it has been shorted to a 15-20 minutes questionnaire which did not allow us to get all the information we would like.

For future work we recommend to repeat the AHP experiment with experts in order to compare the results obtained in this thesis. This will help because they do provide with objective knowledge of the real market performance. An experiment at the POP, such as questionnaires and also observations, will allow us to compare our results with real data of consumers purchase behavior. For the structural equation model, a more complete questionnaire would let to introduce some more variable that can also have an effect on the decision process for the election of a POP.

Finally, it will be interesting to perform the questionnaire in other Spanish cities in order to compare results and conclude reading the global Spanish consumer behavior towards the POP.

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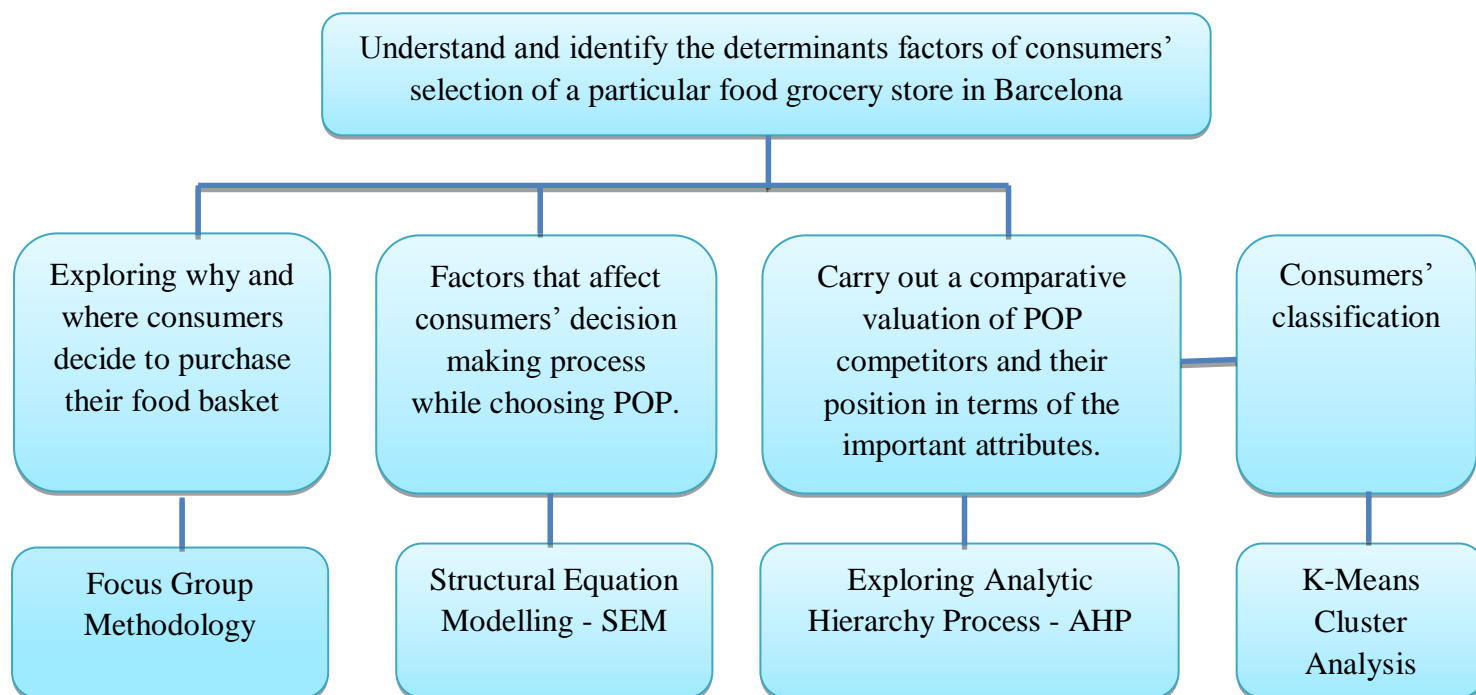


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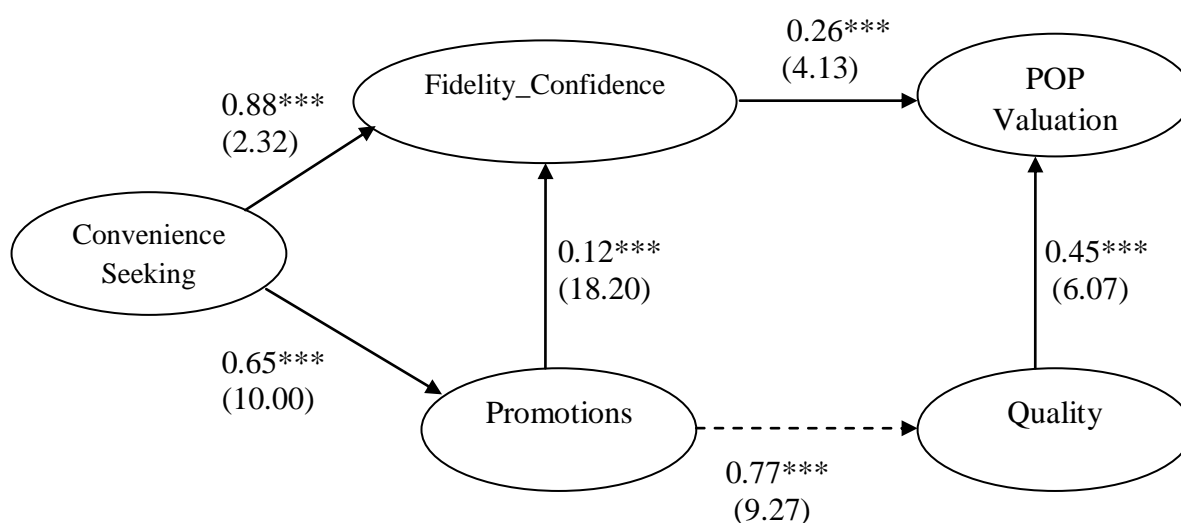
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Figure 1. Methodology



Source: Own elaboration.

Figure 1 Standardized path estimates for the model including indirect and direct effects.



Source: Own elaboration using data from survey

--- ➔ Rejected Hypothesis
 — ➔ Supported Hypothesis

Figure 3. Hierarchical structure used to value POP attributes and levels.

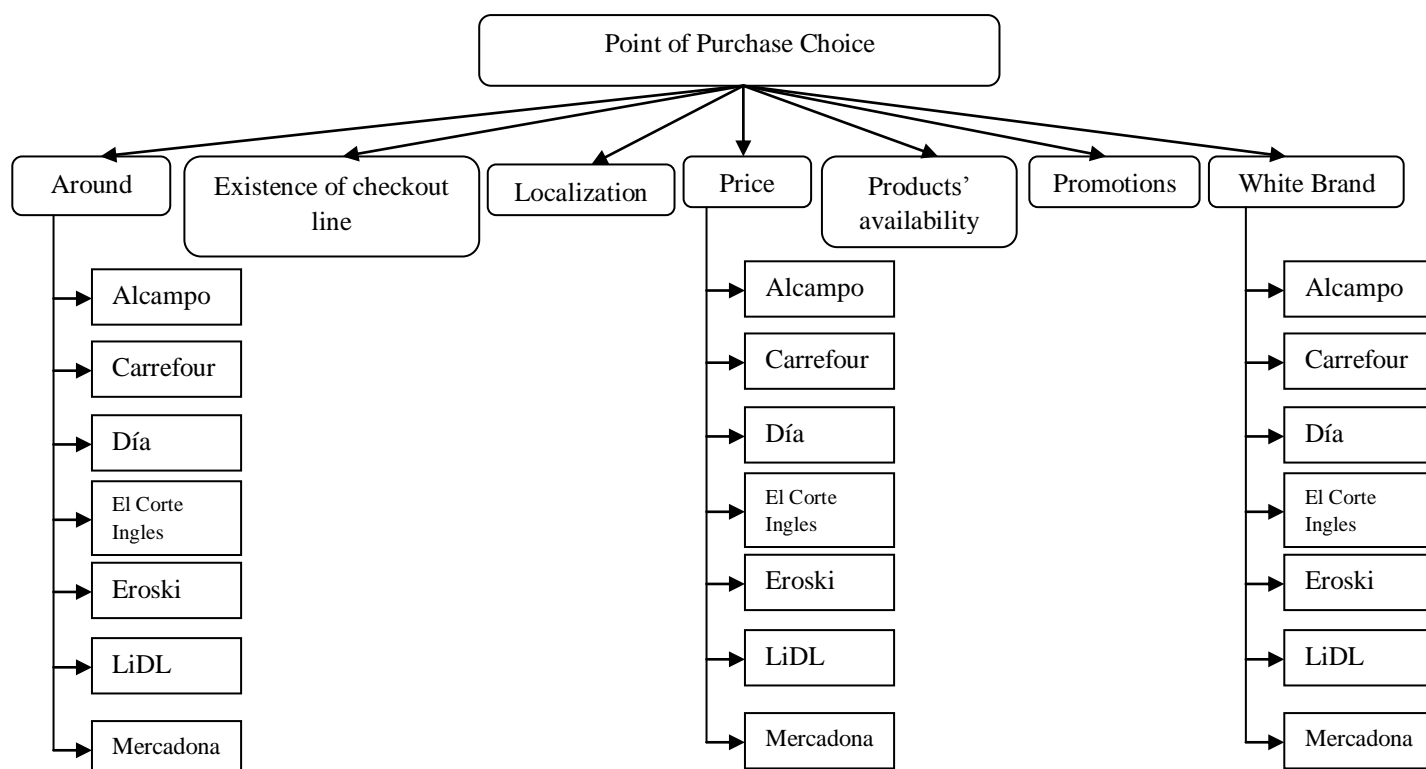


Table 1. Relative importance of levels from AHP.

	AHP results (theoretical stated preference, %)						
	Around	Existence of checkout line	Localization	Prices	Products availability	Promotions	Private label
Alcampo	11,39	12,36	12,31	14,65	16,47	20,29	12,53
Carrefour	9,49	13,48	15,74	10,14	17,09	19,46	14,61
Día	12,40	13,51	16,85	12,97	13,00	14,83	16,43
El Corte Ingles	18,44	7,01	7,58	15,20	11,79	23,12	16,86
Eroski/Caprabo	15,52	12,33	7,44	16,92	14,39	22,56	10,84
LiDL	8,26	11,95	20,56	9,67	14,39	19,19	15,98
Mercadona	10,11	10,77	15,06	12,00	13,56	24,32	14,17

Source: Own elaboration

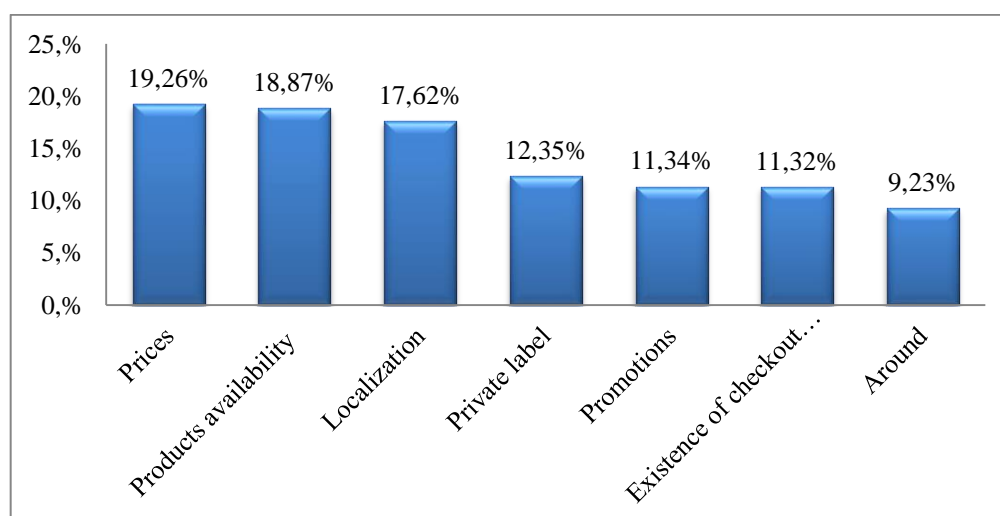
Table 2. Clusters identified (% of respondents in each cluster).

	<i>Cluster 1: "welfare and enjoyment"</i>	<i>Cluster 2: "economy seekers"</i>	<i>Cluster 3 : "Time saver"</i>
% of simple	16%	54%	30%
Around***	41.65%	4.80%	4.11%
Private label***	16.70%	6.17%	2.76%
Localization***	5.00%	26.81%	2.76%
Prices***	18.44%	26.81%	11.21%
Promotions***	2.56%	26.81%	11.21%
Products availability***	7.82%	6.67%	39.27%
Existence of checkout lines***	7.82%	1.93%	28.67%

*, **, and *** indicate significant differences between segments 10; 5 and 1%, respectively, to the chi-square test.

Source: Own elaboration

Graphic 1. Relative importance attributes range.



Source: Own elaboration