Consumer response to crisis: A time-series analysis of purchases and use of promotions for beer product category

Alejandro Mollá Descals and María Eugenia Ruiz Molina

Universidad de Valencia

Miguel Ángel Gómez-Borja

Universidad de Castilla La Mancha

Abstract

During those periods when consumers’ purchasing power decreases, retailers must develop commercial policies according to the new situation. In this context, promotions that may involve monetary savings for the consumer may look especially attractive. However, to propose commercial policies in accordance to the economic situation without unnecessarily reducing the retailer’s profit margin, there is a need to analyze the change of consumer behavior facing the new economic scenario and, in particular, the consumer response to the different types of promotion. Therefore, the present work aims at analyzing the evolution of consumer behavior through the purchases of a product category (i.e. beer) and the consumer response to promotions, concluding from scanner data for a five-year period the existence of changes as it delves into the recessive process and differences in the intensity of response to different types of promotion.

Keywords: Consumer behavior, economic recession, promotions, scanner data, beer.

JEL codes: M10, M31.

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* Corresponding author. Email: M.Eugenia.Ruiz@uv.es

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1. Introduction

In recent years, consumers in most Western economies have experienced or are experiencing significant losses in their purchasing power that result in dramatic declines in consumer confidence indices (European Commission, 2012, The Conference Board, 2012). Given the importance of their consequences, several studies have focused on analyzing the effect of economic recession on consumer behavior (e.g. Granfield, 2009; Simon, 2009; Faganel, 2011). In this line, it has been observed that the economic crisis has a negative impact on sales of luxury products, while it does not affect the basic necessities, such as food products and personal care (Sharma, 2011). In this way, the consumer purchasing behavior during the crisis depends largely on the product category considered. In general, the purchase of luxury goods is postponed, prioritizing the continuity of buying necessity goods.

A communication tool commonly used to encourage purchases is sales promotions. Retailers can find in sales promotions an instrument to encourage consumption in times of crisis. However, while there is a broad consensus on the higher sensitivity to price of consumers in economies in recession (Chou and Chen, 2004), there is still little evidence about the influence of the crisis on consumer response to promotions (Bratina, 2011). Therefore, the objective of this paper is to analyze consumer behavior regarding promotions as the process of economic recession deepens, using scanner data. For this purpose, a product category has been chosen that, although included among food products, can not be considered as a necessity good, and therefore one could do without it. In this way, we try to identify changes in consumption patterns in times of crisis, in order to lay the foundation for a deeper analysis in which other product categories with different characteristics may be included.

2. Literature review

2.1. Effects of economic crisis on consumption

Changes in consumer purchasing behavior during periods of economic downturn have been a topic of study for several researchers (e.g. Faganel, 2011, Simon, 2009). One of the most comprehensive studies is the one of Granfield (2009), who identifies ten different effects that crisis may cause on consumption patterns, namely:

- The Aldi effect - the consumer looks for the same products at a lower price in other stores, without avoiding its purchase;
- The Lipstick effect - buying low value items instead of luxury goods as a fad;
- The Armchair effect - consumers spend more time at home and consider it as their new entertainment center, trying to provide it with all the amenities;
• The Rain-check effect – high value purchase decisions, or high risk decisions, are put on hold, since it is aimed to postpone any non-essential expenditure to a future moment at which the economic situation is more stable.
• The Mr. Burns effect - under the name of the character of miserly businessman in “The Simpsons” animated sitcom, the author refers to the reduction of donations and charitable works of consumers in times of economic crisis;
• The Herd effect - even those consumers that enjoy financial stability modify their consumption behavior, influenced by the behavior and panic of those around them;
• The “Do it yourself” effect - consumers start to opt for doing things by themselves rather than hiring professionals, thus reducing expenditure on non-essential services;
• The Real Money effect - consumers avoid taking new loans voluntarily because of fear about committing themselves to a future debt;
• The Optimism effect - consumers will turn their attention to companies or brands with fun or light-hearted personalities that relieve them in these sad times;
• The Calvin effect - hedonic spending will slow in favor of more conservative consumption patterns.

Flatters and Willmott (2009) corroborate some of these features indicating some trends emerged and stimulated by the recession in the markets, emphasizing frugality, trend to simplicity, lower consumer loyalty and, indirectly, greater relevance of price reflected in trends toward reduction in responsible drinking behaviors (i.e. ethic or fair trade) or ecological consumption, usually associated with more expensive products.

In contrast to changes in consumption patterns, Favaro et al. (2009) point out five rules that should be followed by retailers in difficult economic times. First, focusing on customers who are not loyal either to the store or to competitors’ stores. Second, reducing the gap between consumers’ needs and what is offered by the establishment. Third, reducing “bad costs”, that is, those that produce benefits for which consumers are not willing to pay. In this sense, Simon (2009) also advocates to communicate more visible and tangible benefits for consumers. Fourth, grouping stores according to the similarities and differences of the needs of local consumers and their buying behavior. Finally, redesigning processes - market research, inventory planning, performance management, strategic planning, etc. - to improve the positioning of the company, and even redefine business models (Simon, 2009).

An economy in recession may encourage companies that have abundant resources to cut prices aggressively to maintain their dominant position in the market, so that this may force businesses with fewer resources to react strategically entering in the price war (Sharma, 2011). However, even for companies with healthy finances, predatory pricing policies may not be the solution in the context of an economy in recession (Sharma, 2011).
Sales promotions

The use of sales promotions is common for both manufacturers and retailers to boost sales of their products. To this end, different types of incentives, usually on a short-term basis, have been raised in order to increase or anticipate sales of a product. Thus, for example, temporary price reductions, extra product for the usual price, discount for multiple purchase (e.g. 3x2), lots, manufacturer direct gift, special exhibition or product advertising at point of sale, and the insertion of the product in the retailer’s brochure are frequently used (Mollá et al., 2011).

From the point of view of the manufacturer, with the emergence and dramatic development of private labels, promotions have been raised as a response of manufacturer’s brands to low prices and value propositions offered by store brands. Sales promotions have for consumers an incentive value to test the product, which manufacturers hope will be translated into subsequent customer loyalty.

For retailers, the use of promotions is explained not only by the increase in sales in the promoted category, but also by traffic attraction to the store. However, the ultimate consequences of these promotional policies may also include the anticipation of purchases and the cannibalization of sales of store brand products by those sold under the manufacturer brand, or vice versa, and the erosion of the brand prestige due to a worsening of the perceived quality of the product by the consumer (Chapman and Wahlers, 1999). In fact, Yoo et al. (2000) observe that the frequent use of sales promotions has as a consequence an unfavorable perception of product quality and blocks brand associations and awareness. This empirical evidence is in line with the approach that warns about the damage to consumer preference towards the brand after price promotions (e.g. Guadagni and Little 1983; Ogilvy 1963; Scott and Yalch 1980).

However, some studies question this idea (eg, Davis et al., 1992). This apparent inconsistency can be explained by the presence of moderating factors in the relationship between price and quality, such as sociodemographic variables, being income level among them (Hoch et al., 1995). Moreover, it has been noted that the negative effect of sales promotions on quality perceptions about the promoted product can be diluted when price promotions are a common practice in the industry (Raghubir and Corfman, 1999).

All in all, knowledge about consumer behavior towards sales promotions may result in optimizing brand management and, ultimately, in increasing the profit obtained by the retailer in his activity.

However, the use of promotions by the distributor largely depends on the general strategy followed by the establishment (Mollá et al., 2011). Thus, there are two main types of strategy, namely: Every Day Low Prices (EDLP) and High-Low Prices. Regarding the former (Every Day Low Prices or EDLP), it is a value-based strategy, which consists on keeping prices stable over time, avoiding the use of price promotions and limiting or eliminating store flyers and point of sale advertising. As for the High-Low Pricing strategy (HLP), the retailer aims at attracting traffic to the
establishment through frequent promotions in the prices of high demand products, which are accompanied by advertising in the periodical flyers issued by the retailer and by promotions at the point of sale.

Thus, it is expected that retailers following a Hi-Lo Pricing strategy implement sales promotions most intensively than stores characterized by an EDLP strategy. However, it must take into account additional considerations, such as the importance of store brand strategy.

Up to date it has been scarce the evidence about the impact of the crisis on consumer response to promotions. In this area, Bratina (2011) compares promotions for eight well-known toys brands and unbranded toys in the last quarter of 2007 and the same quarter in 2009, concluding that while the average expenditure decreases with the crisis, the total sales of branded products remain unaffected. In the same study it is warned about the difficulty of including in the analysis all possible determinants that affect consumer behavior.

3. Methodology

To achieve the proposed objective, a quantitative research has been conducted through scanner data. Table 1 shows the main research features.

Table 1. Technical details of the research

<table>
<thead>
<tr>
<th>Universe</th>
<th>Customers of supermarkets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographical scope</td>
<td>Valencian region - Spain</td>
</tr>
<tr>
<td>Sample size</td>
<td>168,568 supermarket tickets belonging to member and non-member customers 8,827 member customers</td>
</tr>
<tr>
<td>Sample design</td>
<td>Scanner data</td>
</tr>
<tr>
<td>Data collection period</td>
<td>January 2007 - December 2011</td>
</tr>
<tr>
<td>Statistical techniques</td>
<td>Descriptive analysis</td>
</tr>
<tr>
<td></td>
<td>Time series analysis</td>
</tr>
<tr>
<td>Statistical software</td>
<td>IBM SPSS version 19.0</td>
</tr>
<tr>
<td></td>
<td>Statgraphics Centurión version 16.1.15</td>
</tr>
</tbody>
</table>

In order to conduct this study, we have a database of purchase tickets from the largest establishment of a Spanish supermarket chain, that includes data on purchases made by both loyal customer cardholders and non-members of the loyalty program. The supermarket chain offers holders of “member cards”, which are personal and not transferable, a check-off in terms of purchases made during the previous month.
Specifically, we focus on beer purchases, since it is a grocery product that can be considered as a luxury good. In this sense, the demanded quantity shows greater elasticity to changes in consumer income than necessity goods and, therefore, it is expected that the economic recession exerts a greater influence on the purchases of this product compared to others in the same grocery industry. The analyzed supermarket chain sells simultaneously more than 10 beer brands in various formats (0.25, 0.33, and 0.5 liter cans; 0.25 and 0.33 liter bottles; 1 liter PET bottles). Among the brands offered by the establishment, until 2009 there was also a private label whose name was not associated with the supermarket chain.

To empirically analyze the effect of the economic recession on consumer behavior in the beer category, it is used time series analysis, adding consumption data to obtain monthly spending figures in the analyzed category, liters purchased, and total expenditure on the establishment. It also gathers information of promotions conducted by the supermarket chain. In particular, scanner data of beer sales are analyzed for a five-year period (2007–2011, both inclusive), coincident with the end of an expansive period and the beginning of recession in the Spanish economy.

4. Results

Beer sales in supermarkets and self-service stores in Spain have increased by 22.51% between 2007 and 2011, from 240,726 to 294,914 thousand liters, while consumption in bars and wineries reduced by 38.12 %, from 3,323 thousand liters recorded in 2007 to 2056 thousands of liters in 2011 (Ministerio de Agricultura, Alimentación y Medio Ambiente, 2012).

Since the objective of this paper is to analyze consumer behavior towards promotions as the process of economic recession deepens, the analysis is focused on scanner data and summaries of promotions provided by a supermarket chain for the period 2007-2011 (both inclusive). In order to achieve the stated objective, first, we proceed to develop a graphical analysis based on time series of monthly expenditure on beer, liters of beer purchased and total monthly expenditure in the store. It is also graphically represented the number of purchases that include beer, the number of purchases of beer in promotion and the percentage that purchases of promoted beer represent on total purchases that include beer in that month. Time series and their corresponding trend-cycle components are graphically represented in Figures 1-6.
Figure 1. Time series of monthly beer expenditure

Figure 2. Time series of average number of liters of beer purchased

Figure 3. Time series of total monthly expenditure in the store
Figure 4. Time series of total monthly purchases including beer

Gráfica de Componente de Ciclo-Tendencia para Total compras cerveza

Figure 5. Time series of total monthly purchases including beer in promotion

Gráfica de Componente de Ciclo-Tendencia para Total compras cerveza en promoci

Figure 6. Time series of percentage representing purchases of beer in promotion on total monthly purchases of beer

Gráfica de Componente de Ciclo-Tendencia para Porcent compras en promo sobre t
With respect to the first four time series (Figures 1, 2 and 3), it is observed that, after experiencing a rise to approximately Month 20 (2007 and first half of 2008), the monthly expenditure on beer, the liters of beer purchased, the total monthly expenditure on the establishment and the number of purchases that include beer tend to stabilize. In contrast, the number of purchases of beer in promotion and the percentage that purchases of beer in promotion represent on total purchases including beer in that month exhibit a standing slightly increasing trend in the five-year period considered.

In order to supplement and clarify further the above graph analysis, we proceed to estimate the trend line and the seasonal variation indexes of the preceding series.

With regard to the trend, a priori, the effect of the crisis on sales of this product category may be positive, as reduced spending in the HORECA channel is associated to an increased consumption at home, which is supplied for these products mainly through hypermarkets and supermarkets. Alternatively, the economic recession may lead to a reduction in spending on items that are not necessities (as in the case of alcoholic drinks), so that the net effect is uncertain. To analyze this trend, we estimate the trend lines corresponding to the monthly expenditure on beer, liters of beer purchased and the total expenditure on store, obtaining the results shown in Table 2.

Table 2. Trend line estimation parameters: Beer sales (in euros and liters) and total expenditure in the store

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Beer expenditure</th>
<th>Beer sales in liters</th>
<th>Total expenditure in the store</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>11.438</td>
<td>13.423</td>
<td>16.187</td>
</tr>
<tr>
<td>Slope</td>
<td>3252.7</td>
<td>2833.3</td>
<td>21229</td>
</tr>
<tr>
<td>R² (%)</td>
<td>2.57</td>
<td>3.83</td>
<td>0.27</td>
</tr>
</tbody>
</table>

As can be seen from the results obtained for these three series, the determination coefficients have very low values, so that, while the slope is positive in all the estimated lines, the positive trend in the evolution of the three series observed over time is not statistically significant.

In addition to this, we estimated linear regression models for time series of total beer purchases, purchases of beer in promotion and percentage of beer in promotion on total monthly purchases that include this product category. In order to analyze in more detail consumer behavior toward promotions, we offer also results for the estimation of the corresponding trend lines for the percentage of promoted beer purchases by member customers and non member customers of the store (Table 3).
In all cases, significant upward trends are observed for these series, although it should be noted that the increase in the percentage of purchases of promoted beer, measured through the slope of the trend line, is more pronounced for store member customers than for the rest of non members. Thus, with the worsening economic situation, member customers seem to be more sensitive to the store promotional policies. This may come explained, firstly, by the greater information than these customers have compared to non member customers, since the former receive at home the monthly promotional flyer, being able to plan their purchases at a greater extent. Moreover, higher response rate to promotions may relate to the profile of the customer that decides to communicate their personal data to adhere to the store as a member customer. In this sense, it is expected that this type of person may be especially sensitive to savings and economic advantages associated with the condition of member customer and therefore respond more intensively to small savings that may represent deals on products that he usually acquires.

Regarding seasonality, previous studies have indicated higher beer consumption in the summer months, reaching its maximum in July (Martin, 2011). Therefore, we proceed to estimate the seasonality coefficients of the series of beer expenditure (in euros and in physical units), total expenditure in the store, total purchases of beer, purchases of promoted beer and percentage of purchases of promoted beer on total beer purchases from the total database of tickets (Table 4).

As can be seen from Table 4, spending on beer and number of liters purchased show a strong seasonality, concentrating consumption of this drink in the summer months, in line with what has been noted by Martin (2011). Instead, they take advantage of promotions mainly during the months of October, June and March, while its use is less frequent in May compared to the rest of months. With respect to total expenditure in the store, although some seasonal patterns are observed, they are not as pronounced as in the case of the analyzed category.
Table 4. Seasonality indexes

<table>
<thead>
<tr>
<th>Month</th>
<th>Beer expenditure</th>
<th>Liters of beer purchased</th>
<th>Total expenditure in the store</th>
<th># beer purchases</th>
<th># beer purchases in promotion</th>
<th>% beer purchases in promotion (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>89.83</td>
<td>88.96</td>
<td>93.87</td>
<td>94.34</td>
<td>105.58</td>
<td>118.38</td>
</tr>
<tr>
<td>2</td>
<td>89.85</td>
<td>88.66</td>
<td>89.38</td>
<td>101.56</td>
<td>72.30</td>
<td>74.33</td>
</tr>
<tr>
<td>3</td>
<td>97.93</td>
<td>101.11</td>
<td>102.59</td>
<td>108.11</td>
<td>151.13</td>
<td>148.12</td>
</tr>
<tr>
<td>4</td>
<td>100.96</td>
<td>99.16</td>
<td>105.94</td>
<td>107.94</td>
<td>96.36</td>
<td>95.04</td>
</tr>
<tr>
<td>5</td>
<td>94.04</td>
<td>92.71</td>
<td>98.58</td>
<td>100.99</td>
<td>48.37</td>
<td>49.52</td>
</tr>
<tr>
<td>6</td>
<td>118.98</td>
<td>121.69</td>
<td>110.50</td>
<td>108.86</td>
<td>153.41</td>
<td>144.88</td>
</tr>
<tr>
<td>7</td>
<td>155.96</td>
<td>162.61</td>
<td>122.55</td>
<td>116.85</td>
<td>111.10</td>
<td>91.90</td>
</tr>
<tr>
<td>8</td>
<td>110.24</td>
<td>109.09</td>
<td>112.85</td>
<td>102.93</td>
<td>95.45</td>
<td>92.64</td>
</tr>
<tr>
<td>9</td>
<td>80.91</td>
<td>81.18</td>
<td>78.44</td>
<td>77.97</td>
<td>61.09</td>
<td>77.34</td>
</tr>
<tr>
<td>10</td>
<td>98.41</td>
<td>96.96</td>
<td>102.69</td>
<td>104.43</td>
<td>175.59</td>
<td>155.53</td>
</tr>
<tr>
<td>11</td>
<td>75.67</td>
<td>74.86</td>
<td>85.59</td>
<td>86.28</td>
<td>60.64</td>
<td>83.99</td>
</tr>
<tr>
<td>12</td>
<td>87.22</td>
<td>83.00</td>
<td>97.01</td>
<td>89.75</td>
<td>68.98</td>
<td>68.34</td>
</tr>
</tbody>
</table>

Finally, we analyze the different types of promotions used by the supermarket chain and its use depending on the customer profile (ie member or non-member customer). Among the promotions used by the supermarket it appears the following ones: inclusion of the product in supermarket flyer (either just for highlighting the product without modifying the terms of sale thereof, or to announce a change in such conditions), temporary price reduction, discount on number of units (for example, when buying 4 cans, the price is reduced from 0.56 to 0.50 euros each unit), free units when buying a lot (eg take 6 units, pay 5, or lots of 11 +1 or 10 +2), lot with gift (either a gift related to beer if buying a number of units - eg a pitcher - or a gift unrelated - eg hat or cap -), product highlighted in shelves and finally, special signs (eg “economy basket”, “Valencian product”). In order to analyze the customer response based on his profile (ie member or non-member customer of the supermarket chain) and the type of promotion, Tables 5 and 6 show the evolution of the number of purchases in promotion throughout the period considered (2007-11) for member and non-member customers, respectively.

With respect to non-member customers, until 2009 they have opted mainly for products highlighted in the monthly supermarket flyer of special offers that do not involve actual changes in the conditions of sale of products, although in 2010 and 2011 the highest response rate is observed in promotions involving a temporary price reduction.
Table 5. Purchases in promotion: Evolution for each type of promotion – non member customers

<table>
<thead>
<tr>
<th>Type of promotion</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Brochure - no price change</td>
<td>671</td>
<td>5.95</td>
<td>1967</td>
<td>10.17</td>
<td>2593</td>
</tr>
<tr>
<td>Brochure – sales promotion</td>
<td>164</td>
<td>1.46</td>
<td>1599</td>
<td>8.27</td>
<td>746</td>
</tr>
<tr>
<td>Temp price reduction</td>
<td>626</td>
<td>5.56</td>
<td>773</td>
<td>4.00</td>
<td>2434</td>
</tr>
<tr>
<td>Discount on no. of units</td>
<td>0</td>
<td>0.00</td>
<td>511</td>
<td>2.64</td>
<td>383</td>
</tr>
<tr>
<td>Free units for lot</td>
<td>77</td>
<td>0.68</td>
<td>505</td>
<td>2.61</td>
<td>373</td>
</tr>
<tr>
<td>Lot with gift</td>
<td>1</td>
<td>0.01</td>
<td>57</td>
<td>0.29</td>
<td>0</td>
</tr>
<tr>
<td>Display in store</td>
<td>0</td>
<td>0.00</td>
<td>36</td>
<td>0.19</td>
<td>2</td>
</tr>
<tr>
<td>Special indicator in store</td>
<td>0</td>
<td>0.00</td>
<td>248</td>
<td>1.28</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 6. Purchases in promotion: Evolution per type of promotion for member customers

<table>
<thead>
<tr>
<th>Type of promotion</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Brochure - no price change</td>
<td>559</td>
<td>5.68</td>
<td>1871</td>
<td>9.82</td>
<td>2542</td>
</tr>
<tr>
<td>Brochure – sales promotion</td>
<td>127</td>
<td>1.29</td>
<td>1461</td>
<td>7.67</td>
<td>737</td>
</tr>
<tr>
<td>Temp price reduction</td>
<td>626</td>
<td>6.36</td>
<td>867</td>
<td>4.55</td>
<td>2503</td>
</tr>
<tr>
<td>Discount on no. of units</td>
<td>0</td>
<td>0.00</td>
<td>479</td>
<td>2.51</td>
<td>355</td>
</tr>
<tr>
<td>Free units for lot</td>
<td>82</td>
<td>0.83</td>
<td>568</td>
<td>2.98</td>
<td>644</td>
</tr>
<tr>
<td>Lot with gift</td>
<td>2</td>
<td>0.02</td>
<td>90</td>
<td>0.47</td>
<td>0</td>
</tr>
<tr>
<td>Display in store</td>
<td>0</td>
<td>0.00</td>
<td>45</td>
<td>0.24</td>
<td>2</td>
</tr>
<tr>
<td>Special indicator in store</td>
<td>0</td>
<td>0.00</td>
<td>350</td>
<td>1.84</td>
<td>4</td>
</tr>
</tbody>
</table>

For member customers of this supermarket chain, compared with non-member customers, a slightly lower response (measured as percentage of purchases in promotion on total purchases of the product category) to inclusions in brochure that involve no changes in the conditions of sale. This may be explained by the higher degree of knowledge of the usual prices in the store by member customers compared
to non-member customers, the latter being those who feel attracted, in general, by the products featured in the monthly brochure of special deals.

The registered customers are usually more responsive to promotions that are instrumentalized through temporary reductions in product price. Moreover, the percentage of purchases of lots with units offered for free is also higher for member customers in comparison to non-member customers. Finally, loyalty card holders seem to pay more attention than non-registered customers to point-of-sale promotions, such as headend products and special signs. This may be due, again, to the greater familiarity of the loyalty card holders with the store and its assortment, so that changes in the conditions of sale of products or point-of-purchase promotions are appealing to regular patrons at a greater extent than in the case of non-member customers, who show a response rate to these actions of the retailer relatively lower.

5. Conclusions

The current economic recession involves a challenge for Spanish retailers that require analysis of possible changes in consumer behavior. In this sense, the present paper has focused on analyzing customer purchasing behavior of loyal customer cardholders and non-frequent customers in a five-year period in a product category (i.e. beer) in terms of expenditure in the product category, number of units purchased, total expenditure in the store and purchases in promotion.

As a result of this study, it is observed that the number of purchases including promoted products and the percentage they represent of the total purchases made for the product category have risen steadily throughout the period 2007-11. In particular, both loyalty card holders and non holders tend to respond mainly in recent years to promotions characterized by temporary price reductions. Moreover, promotional brochures acquire a fundamental role as a tool for enhancing sales for both loyalty card holders, that receive the supermarket flyer at home, and for customers not holding loyalty cards.

However, this study is not free from limitations inherent in time series analysis, among which it is included the possible influence of extraneous variables such as promotion policies of competitors operating in the same area. Furthermore, since a five-year period is analyzed, there could also be an influence of the consumer life cycle, so that he may replace beer with other beverages such as wine.

Moreover, some loyalty program cardholders do not always proceed their cards when purchasing in the store, being also possible to participate in the loyalty program providing their identity card number in the cash. In this case, purchases effected with loyalty card show the loyalty card number, while for transactions effected without this card, data refer to customer identity card number, thus appearing in the database as two different customers. This fact could impede the availability of complete information about the customer’s purchasing behavior.
Moreover, our analysis has been performed only for a product category. We understand that it would be interesting to replicate the study to other product categories. In addition to this, it would also be very useful to include in the model customer sociodemographic data in order to segment customers and to design effective commercial policies to target each consumer group in the target market of the supermarket chain.

Finally, this study has focused on a supermarket chain that follows a Hi-Lo pricing strategy. Further research should be conducted to analyze differences across store formats (e.g. discount stores, supermarkets, hypermarkets, convenience stores, specialty retailers, ...) and retailer’s pricing strategies.

References


Notes on Contributors

Name: Alejandro Mollá Descals
Position: Catedrático de Universidad
School / Faculty: Departamento de Comercialización e Investigación de Mercados. Facultat d'Economia
University: Universidad de Valencia
Address: Avinguda dels Tarongers, s/n, 46022 Valencia. Spain
Telephone: +34 96 162 25 77
Email: Alejandro.Molla@uv.es

Name: María Eugenia Ruiz Molina
Position: Profesora Titular de Universidad
School / Faculty: Departamento de Comercialización e Investigación de Mercados. Facultat d'Economia
University: Universidad de Valencia
Address: Avinguda dels Tarongers, s/n, 46022 Valencia. Spain
Telephone: +34 96 382 83 34
Email: M.Eugenia.Ruiz@uv.es

Name: Miguel Ángel Gómez-Borja
Position: Profesor Titular de Universidad
School / Faculty: Área de Comercialización e Investigación de Mercados, Fac. Cc. Económicas y Empresariales
University: Universidad de Castilla-La Mancha
Address: Plaza de la Universidad, 1, 02071 Albacete
Telephone: 902 204 100 ext. 2309
Email: miguelangel.gborja@uclm.es