The Impact of Brand Price and Promotion on Store Price Image: Evidence from Panel Data

Joseph KASWENGI
Associate Professor of Marketing at University of Orléans
joseph.kaswengi@univ-orleans.fr

Abstract

Retailers widely use price in order to build store price image. While there is evidence that this enhances store price image in storable and high differentiation quality categories, little is known about how it affects consumer's perception for national brand versus store brand regarding category penetration. Using a panel data set that combines longitudinal data on consumers' perceptions about store expensiveness with that of their purchases, we investigate the impact of price, feature, and display on the overall store price image when examining the moderating role of the brand and category penetration. The findings obtained from a three-way interaction estimations model indicate that display and feature positively contribute to the formation of store price image, and this positive effect pertains also to national brand with high penetration. Conversely, display has a negative impact for private label with high penetration and low penetration as well. However, the price is a key determinant of store price image for categories with high penetration as well as for local origin and healthy private labels.

Keywords: category penetration, display, feature, price, private labels, store price image

Introduction

Store image has become a crucial issue in retailing studies. More specifically, consumers use store price images (SPIs)—holistic constructs that summarize how cheap or expensive stores are — in their store choice and purchasing decisions (Hamilton and Chernev, 2013; Lourenço et al., 2015). According to IRI (2015), 3/4 of consumers are making purchase decisions before entering the retail environment. In fact, findings from IRI's Q3 2013 MarketPulse survey indicate that consumers are respectively influenced by loyalty card discounts (48%), newspaper circulars from home (48%), and displays in the store (26%) in the brand decisions. The issue of measuring store price image is important for retailers because it affects store choice and spending (Van Heerde et al., 2008).

Prior research has investigated the impact of marketing mix (category prices; promotions; assortment; featured and non featured category price) on SPI (Desai and Talukdar 2003; Lourenço et al., 2015; Hamilton and Chernev, 2013; Lalwani and Monroe, 2005). This study responds to the Lourenço et al.'s (2015) article call since the role of national brand (NB) versus private label (PL) prices in SPI developpement has received little attention. Moreover, there is a need to investigate specific tiers of PLs—namely, the organic, the local origin, and the thematic (specifically healthy) PL—since the revenue of those PLs continues progressing in the PLs' total turnover while that of standard and economy PLs declines (Planchard, 2014). The competitive PLs may help retailers to win in the fight between NBs and PLs because they appear to be perceived as most similar in quality to the leading NBs and as close substitutes (Juhl et al., 2006; PLMA, 2015). We believe that empirical evidence obtained in this research could provide retailers with a basis for allocating scarce resources for more competitive PLs.

In addition, we investigate the role of the in-store displays and the category penetration. The category penetration has been widely studied, but strangely its role in the relationship between marketing elements and store price image has been largely neglected. This research remedies this by examining the impact of the higher category as well as that of lower penetration. Assessing a retailer's performance in a category is important to both manufacturers and retailers since the impact of the key drivers of the effective category management depends on the role the category plays in the overall retail portfolio (Dhar et al., 2001). The category management is a process for managing product categories as business units and customizing them store-by-store, so as to meet consumers' needs. The objective of

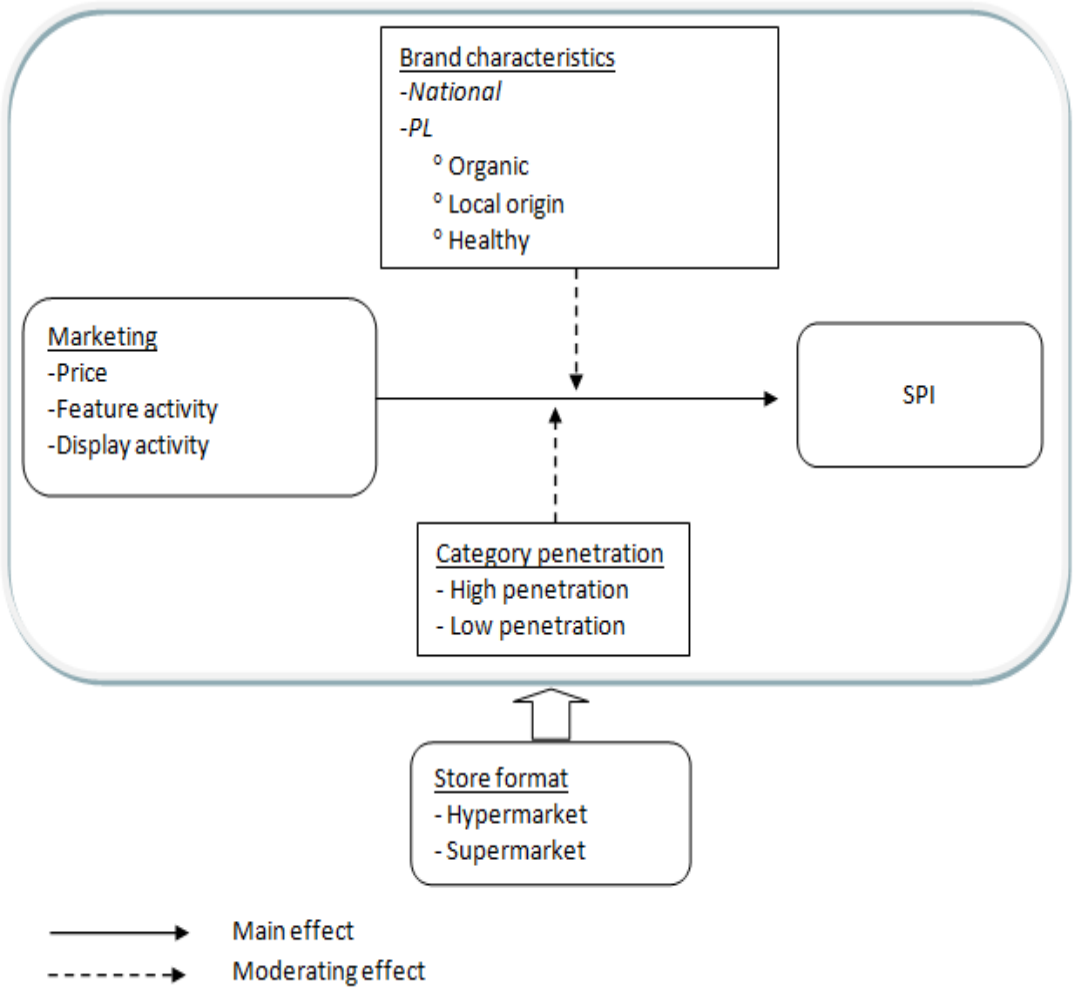
category management is to maximise the sales and profits of a product category (Pepe et al., 2012). For example, Narasimhan et al. (1996) argue that retailers make judgments about promotion response on the basis of product characteristics, such as category penetration. In other words, once the retailer decides to run a marketing tactic (in particular price and promotion), the question may become whether the category penetration should be a lower-penetration category or a higher-penetration category. Therefore, our study can help retailers control tactics, such as feature for PL's tiers. To address the research voids mentioned above, we propose a conceptual framework that incorporates the effects of three distinct sets of variables: marketing elements (price, feature, and display), category and brand characteristics.

Research Framework

The conceptual framework of this study (Figure 1) aims to (1) provide the first longitudinal examination of the impact of price, display, and feature on SPI and (2) determine the moderating effects of brand's characteristics (national brand versus private label, specifically the organic, the local origin, and the healthy PL) and category penetration (high penetration versus low penetration).

We base our conceptual framework from cognitive and environmental psychology in that store environmental dimensions influence consumers' perceptions of store choice criteria (e.g. interpersonal service quality, merchandise quality perception) which in turn affect consumer's attitude and behavior towards store (Baker et al., 1994). Several theories, specifically the inference theory, can constitute the conceptual foundation for the premise regarding the store environment. The inference theory argues that people make judgments about the unknown on the basis of information they receive from cues that are available to them. This theory suggests that consumers attend to cues when evaluating stores, because they believe that these cues offer reliable information about product-related attributes such as price, and the overall shopping experience (Baker et al., 1994). Therefore, we posit that consumers' perceptions of store choice criteria (e.g. merchandise quality perception, feature activity) can influence global store image and its elements and, consequently, store price image.

Figure 1. Conceptual framework: Impact of brand price and promotion on SPI.



To meet the aim of our study as effectively as possible, we are committed to developing the main and moderating effects of price, feature and display. Previous studies have already considered the effect of specific marketing elements on store price beliefs but have done so either conceptually or in an experimental setting to such an extent that evidence on how those actions dynamically influence perceived store expensiveness in a real-life setting remains scant (Lourenço et al., 2015). Given the dearth of conceptual and empirical research on how price, feature and display broaden SPI, our discussion is exploratory and does not develop formal hypotheses. Prior studies have derived empirical generalizations from large data set that can subsequently be used to develop generalized explanations in line

with the Empirical-Theoretical-Empirical-Theoretical (ETET) (Nijs et al., 2001). Given that this article also deals with a large amount of data, it adopts this approach.

The main effects of marketing-mix: price, feature, and displays

Price

Prior research suggests that price plays a critical role in the formation of store image. On the one hand, some studies in the literature focused on the role of perceived price either on overall store image or on overall store price image (Jinfeng and Zhilong, 2009). Jinfeng and Zhilong (2009) found a positive impact of perceived price on retailer associations and retailer perceived quality. Chang and Wang (2014) showed that price value, price fairness, and price pleasure images influenced the overall store price image (OSPI) and subsequently led to repurchase intentions. On the other hand, previous research has investigated the influence of actual price on store price image but has done so by considering price at the category level. Desai and Talukdar (2003) examined how prices offered on different types of products influence OSPI and observed a positive influence of prices of four product groups on consumers' overall store price image. The most recent study (Lourenço et al., 2015) estimated the impact of categories' actual prices on the formation of price image for different store formats. Results showed that price image is shaped by prices of storable categories with largely bought quantities and high differentiation quality in traditional supermarkets. Similar to traditional supermarkets, categories with a wider price range have a negative impact on the consumer's overall store price beliefs for hard discounters.

According price-based cues, especially the promotion depth and promotion frequency, the authors highlight that prices in frequently promoted categories have a lower impact on store price image formation for traditional supermarkets. The results also show that categories with deep price cuts provide negative signals of overall supermarket cheapness. Prices have been traditionally considered as the key drivers of store price image by means of which higher average prices contribute to the formation of a higher price image. However, some researchers suggest that lowering prices without managing the other price-related and nonprice drivers of price image may not have a significant impact on a retailer's price image (Hamilton and Chernev, 2013). Overall, it is not clear whether the positive effect dominates the negative effect on store price image, and thus a large-scale generalization seems necessary. In contrast with previous studies, this research assesses the impact of prices at brands' level and the positioning of three private labels (organic, local origin, and healthy store brands). Given the

competing arguments, we treat the effect of price on store price image as an empirical question. Table 1 summarizes the expected effects of the marketing mix.

Table 1. Expected price and promotion effects on store price image.

		Predicted effect on
Variable	*Operationalisation*	*Store price image*
Price	Euros spent	Positive/Negative
Feature	Dummy (1=feature, 0 otherwise)	Positive
Display	Dummy (1=product display activity, 0 otherwise)	Positive
NB	Dummy (1=national brand, 0 otherwise)	
PL	Dummy (1=private label, 0 otherwise)	
LP	Dummy (1=low penetration, 0 otherwise)	
HP	Dummy (1=high penetration, 0 otherwise)	
Price×NB/PL×LP		Positive/Negative
Price×NB/PL×HP		Positive/Negative
Feature× NB/PL×LP		Positive/Negative
Feature×NB/PL×HP		Positive/Negative
Display×NB/PL×LP		Positive/Negative
Display×NB/PL×HP		Positive/Negative
Price×OPL/LOPL/HPL×LP*		Positive/Negative
Price×OPL/LOPL/HPL×HP		Positive/Negative
Feature×OPL/LOPL/HPL×LP		Positive/Negative
Feature×OPL/LOPL/HPL×HP		Positive/Negative
Display×OPL/LOPL/HPL×LP		Positive/Negative
Display×OPL/LOPL/HPL×HP		Positive/Negative

* OPL (Organic PL), LOPL (Local Origin PL), HPL (Healthy PL)

Feature activity

Feature as one of the retail promotions (Sethuraman and Gielens, 2014) is used by retailers and manufacturers as a tool of competition between brands (Steenkamp et al., 2005). For example, consumers tend to accelerate their purchases in response to a promotion. More specifically, they buy earlier and/or purchase larger quantities than they would in the absence of a promotion (Van Heerde et al., 2000). Consumers who enjoy making use of marketing information are said to be heavier users of feature advertising (Ailawadi et al., 2001). Feature is a crucial factor that consumers use to infer the overall store image. Lourenço and colleagues (2015) find that the link between a store's price image and its category feature variables is very weak and mostly insignificant. Even though several studies in the literature

suggest that feature is positively related to the brand performance (e.g. sales), there is a lack of evidence to support either the positive or the negative impact of feature on store price image. Despite the lack of findings, we suggest that consumers form perceptions about the price of a store from various information sources, particularly feature. We expect to find that feature will increase store price image (making it less expensive) because feature is often offered with price discounts that can meet feature-oriented consumers' needs and their commitment to seek the savings.

Display activity

Another promotion instrument that can differentiate a brand from its competitors is display activity. Like the newspaper feature advertising, in-store displays are generally associated with price cuts (Erdem et al., 2001). Although previous studies have given some attention to how nonpromotion (e.g. service, ambiance, assortment), price (e.g. price range, category price), and promotion (e.g. promotion depth, feature) cues have different effects on store price image, the impact of in-store displays remains undocumented (Baker et al., 2013; Parasuraman et al., 2002; Lourenço et al., 2015). Erdem and colleagues (2001) suggest that the greater display, together with its price-cut signal effect, increases the likelihood of the item being considered, thereby increasing the likelihood of cognitive processing of the item's attributes, including price. This supports the idea that more feature-sensitive consumers are gain-sensitive than the average consumer. We expect that the price-cut signal may lead to more attention to store price image as an attribute to be actively processed in making the store choice. Therefore, as the customers' perceptions of in-store displays cues become more favorable, customers will perceive store price to be lower. Unlike, the smaller the display's gains, the less favorable attitude towards the in-store displays.

The moderating impact of category penetration and brand characteristics

Category penetration

The category management is a practice that allows retailers to decide on the role each category plays in the overall portfolio and then execute towards those goals. Several reasons justify the category management, such as ensuring category leadership, increasing market share, revenues, and profitability, etc. (Dhar et al., 2001). Prior studies of the relationship between price and store price image have provided suggestions that consumers are often exposed to prices in regularly purchased categories, which makes them more salient and

easier to recall in later price judgments. Furthermore, the prices' information provided can lead consumers to gain more from low prices in those categories (Desai and Talukdar, 2003; Hamilton and Chernev, 2013; Lourenço et al., 2015; Urbany et al., 1996). In particular, Lourenço et al. (2015) have found that prices of categories bought in large quantities are more powerful in the formation of supermarkets' price images. The purchase frequency is more influential in the formation of store image for traditional supermarkets than for hard discount stores. Although Lourenço and colleagues (2015) have found that consumers are more likely to use advertised prices than nonfeatured ones to update their overall price beliefs about the store, existing research has not provided a clear evidence of how feature, display, and prices interact with both the categories's penetration (low and high level) and the brand (national brand and private label). The penetration frequency (percentage of households that purchase the category) has been found to provide solution in clustering when analysing the consumer responses to marketing tactics (Dhar et al., 2001).

Brand characteristics

Prior research suggests that there is a high degree of heterogeneity in the particular items used to form a price image. That is to say that not all items are equal in price image formation since retailers have identified known value items such as categories, brands (Hamilton and Chernev, 2013). Lourenço et al. (2015) encourage researchers to examine the role of brands in the formation of store price image while suggesting that consumers might use the prices of leading national brands as cues to infer the stores' overall price levels. But the authors also point out that the private label prices may stand out in the formation of store price image. Private labels or store brands have exhibited considerable growth in the last few decades, especially in the Western countries (Sethuraman and Gielens, 2014). In the United Kingdom, Spain and Switzerland, the value shares of private labels rose to more than 40% (PLMA, 2015). Even if national brands are to continue to dominate private labels, brand managers should not ignore the legitimacy of private labels competition (Gielens, 2012). In France, while the retailer's revenue regarding standard and economy private labels decreased in 2013, that of the organic, thematic, premium, and local origin private labels are steadily increasing (Planchard, 2014).

The organic, local origin, and thematic (namely healthy store brands) private labels continue to be a key focus area in retailing. The introduction of organic private label represents one of the recent developments in the organic product market in the United States and in Europe as well. The organic store brands have been pioneers in many product

categories, especially in France (Ngobo and Jean, 2012). Despite the amount of recommendations for extending the research on organic private labels, many issues remain to be solved. In particular, there is a need to understand how the synergies between these brands, price and price-related cues, and category penetration affect store price image. Among the local store brands, the French « terroir » private labels constitute one of the rare exceptions in the European retailing context. The concept of local or « terroir » private label consists in putting together, under one umbrella brand, several regional and typical products that fulfil specifications based on culture, tradition and know-how of SME's (Beylier et al., 2011). Marketing literature suggests that nutrition labels influence health beliefs, intentions and purchase beahavior (Moorman et al., 2004; Wansink and Chandon, 2006). For instance, Wansink and Chandon (2006) show that low-fat labeling increases consumption mostly with foods that are believed to be relatively healthy for normal-weight people. According to EUROMONITOR (2012), products that offer specific health benefits, such as fortified/functional, or those renowned for their natural health properties drove value sales, with rates above 7%. The global health and wellness sales is expected to hit a record high of US$1 trillion by 2017. The increasing consumer demand for organic, local origin, and healthy private labels can lead retailers to deal with many challenges (e.g. increasing the number of brands' SKUs). By making the effort to understand how their core and target consumers shop for organic, healthy, and local origin private labels, mass retailers may be able to emphasize those marketing elements that interact both with the characteristics of these brands and that of category (e.g. penetration) as drivers of store price image, and consequently might exert a significant impact on store loyalty.

Methodology

Description of the data

We use a panel dataset of French market for 12 stores and 3,426746 observations over the 2004-2009 period. Panelists are selected with representative sampling designed to mirror the geodemographic profile of French households. The database originates from a unique source (GfK) but contains two parts. First, GfK provided data on quantity, price, display, feature activity, spending, etc. Second, GfK furnished also data on consumers' store price perceptions collected annually on the same panelists. The households answered the question « Does the store regularly has low prices? », « Does the store has good sales promotions? », « Does the advantages (e.g.coupons, bonus points) offered by the store are attractive? » on a 5-point Likert scale ranging from 1 (« totally disagree ») up to 5 (« totally agree »). Like Lourenço,

Gijsbrechts, and Paap (2015), we only selected households that are in the panel throughout the observation period and that participated in the survey. We then combined the purchasing data and the survey data on the same households. We investigate the effects of marketing-mix elements on 156 product categories. Because consumer's response towards price and promotional activities may differ across categories (Slotegraaf and Pauwels, 2008), we selected food and nonfood, perishable and nonperishable, storable and nonstorable categories. In Appendix A1, we show the descriptive statistics of the data. Because the data span a long period (five years and half of weekly data), there is sufficient variance in terms of price and price promotions variables to measure their effects. We then retain households who bought a brand wihin a category at least once during the period of the study (Table 2).

Table 2. Description of demographics.

Household's size (number of persons)		Freq.	Percent	Cum.
	1	365	13,69	13,69
	2	878	32,91	46,6
	3	450	16,87	63,47
	4	581	21,78	85,25
	5	305	11,43	96,68
	6	40	1,51	98,19
	7	48	1,81	100
Age of the household's head				
	25–29	77	2,87	2,87
	30–34	167	6,28	9,15
	35–39	273	10,22	19,37
	40–44	361	13,54	32,91
	45–49	428	16,04	48,95
	50–54	374	14,04	62,99
	55–59	292	10,95	73,94
	40–44	180	6,76	80,70
	65–70	149	5,60	86,30
	>70	366	13,71	100,00
Household's monthly income				
	<€ 990	109	4,1	4,1
	€990–€1295	286	10,71	14,82
	€1295–€1830	444	16,65	31,47
	€1830–€2285	469	17,6	49,07
	€2285–€2745	402	15,07	64,14
	€2745–€3350	460	17,24	81,38
	€3350–€3810	205	7,67	89,05
	€3810–€4575	292	10,95	100
Education of Household's head				
	No college	1831	68,64	68,64
	College	836	31,36	100

Table 2 reports the features of the dataset regarding the households' characteristics. As a result, the study concerns 2,667 households who purchased and responded the quetionnaire as well.

Data operationalization

Firstly, we describe our measure of store price image. Then, we give operationalization of dependent and independent variables.

Store price image. Store price image is defined as the consumer's perceptions about a store's overall expensiveness. This represents the consumer's store evaluation they visited during the previous year. The stores rated by the households continued to be patronized by the same consumers. This measure is conceptually similar to the ones described in Lourenço and colleagues (2015), Desai and Talukdar (2003), Hamilton and Chernev (2009). We conducted a principal component analysis. All the loadings of the store price image are substantial: λ=.74, λ=.86, and λ=.81. This range is excellent when compared to conventions of the loadings being .40 (Hair et al., 2014). The standardized coefficients for the store price image are .55, .86, .66, respectively (Appendix A2). The alpha is 0.72, which is over the .70 minimum value standard. We ran the confirmatory factor analysis and assessed how the model fit the data. The statistical information involving the goodness of fit indicates that the key measures, specifically SRMR (.00), RMSEA (.00), and CFI (1) are all excellent.

Price. The measure of the price activity that we study is the amount spent by household for a brand in a store per purchase occasion (Narasimhan et al., 1996).

Feature activity. We use the measure of the feature activity that refers to the « price special » activity for a brand in a store on any particular purchasing occasion (Slotegraaf and Pauwels, 2008). It equals 1 to indicate the fact that the brand was bought thanks to feature activity, and 0 otherwise.

Display activity. The display activity refers to the «price cuts» activity for a brand sold via the end-of-aisle in a store at a particular purchasing occasion. Like feature advertising, it equals 1 when the brand is bought through the product display activity, and 0 otherwise (Ngobo and Jean, 2012, Slotegraaf and Pauwels, 2008).

Category penetration. Following Dhar et al. (2001), we classify categories into "high" and "low" penetration, that is, the percentage of households that purchase the category. We transformed the percentage of households into dummy variables by setting the highly penetration = 1, and 0 otherwise. In the same vein, we did transformation for low penetration.

Brand characteristics. A dummy variable indicates whether a brand is regarded as national brand (=1), or non national brand (=0). We created another dummy variable indicating if a

brand is private label (=1) or not (=0). A second series of dummy variables indicates whether products belonging to a specific category can be considered organic (=1), or nonorganic (=0), local origin (=1) or nonlocal origin (=0), healthy (=1), or nonhealthy private labels (=0).

Findings

We use these data to run panel pooled ordinary least-squares regressions controlling for a number of unobserved factors and perform three-way interaction estimations on the variables. The pooled model is one of the appropriate approaches to treat heterogeneity. We fitted the model with the variance-covariance matrix of the estimators' option at the household's level to obtain appropriate standard errors for the clustered data. The model assumes that the mean structure is correctly specified and that the residuals are uncorrelated with the covariates. We find clear evidence that brand's type and category penetration moderate the relationship between price, promotions and SPI. In terms of direct effects, we observe that display (.068, 14.23), feature advertising (.048, 2.83) and PL (.032, 20.20) positively influence SPI (Table 3).

Table 3. Impact of price, display and feature on SPI.

Variable	*Expected effect*	*Coef.*	*t*	*p-Value*
Price	+/-	.0009	1.40	.161
Display	+	.0687	14.23	.000
Feature	+	.0480	2.83	.005
PL		.0329	20.20	.000
Price×PL×HP	+/-	-.0060	-7.66	.000
Price×PL×LP	+/-	.0031	3.32	.001
Price×NB×HP	+/-	-.0164	-25.45	.000
Display×PL×HP	+/-	-.0619	-10.97	.000
Display×PL×LP	+/-	-.0742	-5.73	.000
Display×NB×HP	+/-	.0534	10.06	.000
Feature×NB×HP	+/-	.0891	5.19	.000

According to the moderating effects, the interactions price-PL (-.005, -7.66), price-NB (-.016, -25.45), display-PL (-.061, -10.97) are negatively moderated by categories with higher category penetration. Quite the opposite, the interaction between display and NB (.053, 10.06) and feature and NB (.089, 5.19) are positively moderated by categories with higher penetration. In other words, there is respectively a 5.49 % and 9.32% estimated increase in SPI of display for national brands in the categories with high percentage purchasers. In addition, while the low penetration of categories has a negative impact on the interaction

display-PL (-.074, -5.73), it has a positive influence on the interaction between price and PL (.003, 3.32).

When examining the moderating effects regarding private label positioning, we observe three relevant effects. First, price decreases store price image about .86%, .87%, .88%, respectively for organic, local origin and healthy private label. Second, as for the direct effets, display positively influences store price image for organic (.0713, p<.001), local origin (.0720, p<.001) and healthy (.0719, p<.001) private label. Similar to display, the impact of feature is positive concerning organic (.0917, p<.001), local origin (.0924, p<.001) and healthy (.0923, p<.001) private labels.

Table 4. Effects of price, display, feature, and category penetration on SPI for PLs.

		Organic PL		*Local Origin PL*		*Healthy PL*	
Variable	*Expected effect*	*Coef.*	*p-Value*	*Coef.*	*p-Value*	*Coef.*	*p-Value*
Price	+/-	-.0086	.024	-.0087	.020	-.0088	.020
Display	+	.0713	.000	.0720	.000	.0719	.000
Feature	+	.0917	.000	.0924	.000	.0923	.000
PCE×OPL×HP	+/-	-.0325	.002				
PCE×LOPL×HP	+/-			.0264	.014		
PCE×HPL×HP	+/-					.0093	.022

Third, we also observe that the interactions price-HP (-.032, -3.18) has a negative impact on store price image for organic private labels while this interaction is positively moderated by local origin (.026, 2.46) and healthy (.009, 2.29) private labels as well. Due to explicit and implicit costs associated with organic labels, consumers may find that healthy and locally grown private labels are more sustainable than organic products.

Discussion

The finding that there is a positive relationship between display/feature, national brand and high penetration is an important one. This result highlights the notion that display and feature can help promotion-oriented customers' goal of saving money, leading to positive attitudes toward national brands and thereby strengthening SPI. Another important result is that the synergies between display, private label and high penetration as well as low penetration have a negative impact (-6% and -7.15% respectively) on SPI. At first, this result may seem

counterintuitive because one might expect private labels play a greater role in the formation of SPI. Private label represents the choice and opportunity to regularly purchase quality food and non-food products at savings compared to manufacturer brands, without waiting for promotional pricing (PLMA, 2015). Display activity is often associated with price reduction. As a result, according to the inference theory, the combination between private label and displays is expected to convey the perceptions of low or favorable price that increases the value of the product, creating a perception of savings, which in turn should positively influence store price image (Yoo et al., 2000). Indeed, our data indicate a positive main effect for PL and its ranges positioned on specific consumption trends. Our findings suggest that frequent use of display causes consumers to infer low product quality (Yoo et al., 2000), especially for PL. A third interesting finding is that price is a key determinant of store price image when it concerns categories with high penetration and store brands that are focused on locally grown and healthy labels.

Our study provides useful guidance to retailers when they define strategic programs to the brands carried by their stores. First, the finding that display/feature have positive impact on SPI for national brand and among categories with high penetration indicate that it is crucial to attract consumers with national brands which generate store traffic, and therefore, spending. In addition, the result that the link between display, PL, and higher/lower category penetration has a negative influence on SPI suggests that retailers are less effective in developping SPI under frequent diplayed PLs. However, there are some exceptions. Indeed, we found that display and feature tend to strengthen store price image for thematic store brands, that is, healthy and locally grown private labels. This result suggests that retailers should still continue to develop selected thematic private labels in order to improve their stores' perceptions, which in turn, may result in significant enhancement of turnover.

One limitation of the current study is that we did not examine the moderating role of promotions. Therefore, future studies could formally examine the role of display and feature as moderators instead of independent variables. In terms of demographics, income, household size, education might be important moderators. Further research could explore these variables, as well as other consumer characteristics. Although we examine the moderating impact of category penetration, category frequency may influence the formation of SPI. It would be useful to replicate our findings in a setting where categories fall into one of four groups: staples, niches, variety-enhancers, and fill-ins (Dhar et al., 2001). Finally, further research is

also needed to examine the effects of interactions in two main store formats: supermarket and hypermarket.

References

Ailawadi KL, Neslin SA and Gedenk K (2001) Pursuing the value-conscious consumer: store brands versus national brand promotions. *Journal of marketing* 65(1): 71-89.

Baker J, Parasuraman A, Grewal D and Voss GB (2002) The influence of multiple store environment cues on perceived merchandise value and patronage intentions. *Journal of marketing* 66(2): 120-141.

Beylier RP, Messeghem K and Fort F (2011) Les distributeurs à la conquête de la légitimité territoriale : le cas Carrefour. *Management & Avenir* 44(4): 235-255.

Chang S and Wang K (2014) Investigating the Antecedents and Consequences of an Overall Store Price Image in Retail Settings. *Journal of Marketing Theory & Practice* 22(3): 299-314.

Desai KK and Talukdar D (2003) Relationship between product groups' price perceptions, shopper's basket size, and grocery store's overall store price image. *Psychology & Marketing* 20(10): 903-933.

Dhar SK, Hoch SJ and Kumar N (2001) Effective category management depends on the role of the category. *Journal of Retailing* 77(2): 165-184.

Erdem T, Mayhew G and Sun B (2001) Understanding reference-price shoppers: a within-and cross-category analysis. *Journal of Marketing Research* 38(4): 445-457.

EUROMONITOR (2012) Health and Wellness the Trillion Dollar Industry in 2017: Key Research Highlights. Accessed November 11, 2015, from http://blog.euromonitor.com/2012/11/health-and-wellness-the-trillion-dollar-industry-in-2017-key-research-highlights.html

Gielens K (2012) New products: The antidote to private label growth?. *Journal of Marketing Research* 49(3): 408-423.

Hair JF, Black WC, Babin BJ, Anferson RE (2014) *Multivariate Data Analysis*. Essex : Pearson.

Hamilton R and Chernev A (2013) Low prices are just the beginning: Price image in retail management. *Journal of Marketing* 77(6): 1-20.

Juhl HJ, Esbjerg L, Grunert KG, Bech-Larsen T and Brunsø K (2006) The fight between store brands and national brands—What's the score?. *Journal of Retailing and Consumer Services* 13(5): 331-338.

Lalwani AK and Monroe KB (2005) A Reexamination of Frequency-Depth Effects in Consumer Price Judgments. *Journal o f Consumer Research* 32(3): 480-85.

Lourenço CJ, Gijsbrechts E and Paap R (2015) The Impact of Category Prices on Store Price Image Formation: An Empirical Analysis. *Journal of Marketing Research* 52(2): 200-216.

Narasimhan C, Neslin SA and Sen SK (1996) Promotional elasticities and category characteristics. *The Journal of Marketing* 60: 17-30.

Ngobo PV and Jean S (2012) Does store image influence demand for organic store brands?. *Journal of Retailing and Consumer Services* 19(6): 621-628.

Nijs VR, Dekimpe MG, Steenkamps JBE and Hanssens DM (2001) The category-demand effects of price promotions. Marketing science, 20(1): 1-22.

Pepe MS, Abratt R and Dion P (2012) Competitive advantage, private-label brands, and category profitability. *Journal of Marketing Management*, 28(1-2): 154-172.

Planchard C (2014) Bio, local, premium: Le trio gagnant des marques de distributeurs. Accessed October 28, 2015, from http://www.20minutes.fr/economie/1276567-20140120-20140120-bio-local-premium-trio-gagnant-marques-distributeurs

PLMA (2015) Private Label Today. Popularity Keeps Growing. Accessed October 28, 2015, from http://www.plmainternational.com/industry-news/private-label-today

Sethuraman R and Gielens K (2014) Determinants of Store Brand Share. *Journal of Retailing* 90(2): 141-153.

Slotegraaf RJ and Pauwels K (2008) The impact of brand equity and innovation on the long-term effectiveness of promotions. *Journal of Marketing Research*, 45(3): 293-306.

Steenkamp JBE, Nijs VR, Hanssens DM and Dekimpe MG (2005) Competitive reactions to advertising and promotion attacks. *Marketing science* 24(1): 35-54.

Van Heerde HJ, Leeflang PS and Wittink DR (2000) The estimation of pre-and postpromotion dips with store-level scanner data. *Journal of Marketing Research* 37(3): 383-395.

Wansink B and Chandon P (2006) Can "low-fat" nutrition labels lead to obesity?. *Journal of marketing research*, 43(4): 605-617.

Yoo B, Donthu N and Lee S (2000) An examination of selected marketing mix elements and brand equity. *Journal of the academy of marketing science* 28(2): 195-211.

APPENDIX

Appendix A1. Descriptive statistics.

	Price		Display		Feature		
	Mean	Variance	Mean	Variance	Mean	Variance	N
National brand	2.894	7.610	.074	.069	.053	.050	2037321
Private label	1.868	2.253	.050	.048	.037	.036	1389425
Organic private label	2.819	4.977	.021	.020	.017	.016	34616
Local private label	2.777	6.986	.052	.049	.053	.050	20350
Healthy private label	2.696	5.028	.055	.052	.030	.029	64310

Appendix A2. Model construct and item correlation matrix.

	Loadings	Alpha	Item correlation		
Item			1	2	3
1 SPI	.74	.72	1		
2 SPI	.86	.53	.47	1	
3 SPI	.81	.64	.36	.57	1
Scale alpha		.72			