An Empirical Analysis of the Drivers and Moderators of Store Price Image

Abstract

Few studies have considered the moderating role of brand (national versus private label) and category characteristics (frequency and penetration) in the relationship between marketing instruments (store regular price, feature, and display) and store image in a longitudinal way, instead emphasizing price-based information and non price cues. Thus, little guidance is available to businesses concerning the potential effectiveness of their marketing expenditures over time. To investigate this issue, we applied a three-way interaction estimations model to a weekly household-panel scanner data set that combines longitudinal data on consumers' perceptions about store expensiveness with that of their purchases over a five and one-half year period. One of the findings 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, low and high frequency.

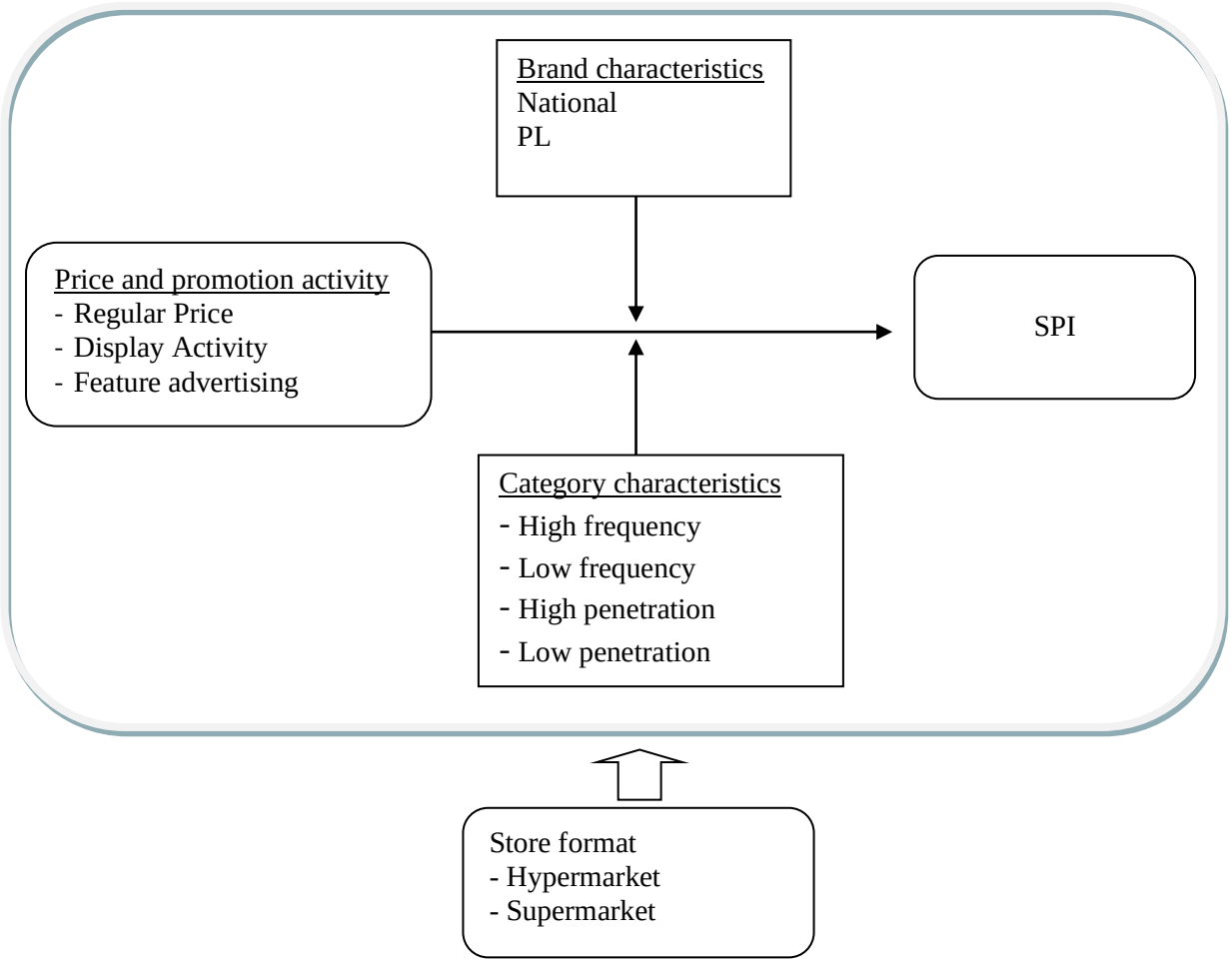
Keywords: *brand, price, store price image*

An Empirical Analysis of the Drivers and Moderators of Store Price Image

Store image is carefully managed in order to improve the retailers' competitive advantage. Indeed, since the grocery market has become increasingly competitive, store attributes —comprising store image — constitute the way in which retailers differentiate themselves from competitors. Store image refers to a consumer's global impression of a retail store (Bao, Bao, and Sheng, 2011 ; Zimmer and Golden, 1988). 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, Gijsbrechts, and Paap, 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.

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; Hamilton and Chernev, 2013; Lalwani and Monroe, 2005; Lourenço et al. 2015). 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 development has received little attention. This research aims to (1) provide the first longitudinal examination of the impact of price (PCE), display (DISP), and feature (FEAT) on SPI and (2) determines the moderating effects of brand's type (national brand versus private label) and category characteristics (high frequency (HF) versus low frequency (LF) and high penetration (HP) versus low penetration (LP) (Figure 1).

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



1. Methodology

We use a panel dataset of French market for 12 stores, 156 product categories, and 3,426746 observations over the 2004-2009 period (we combined the survey data and the purchasing data on the same households). The use of longitudinal data when examining marketing cues and customers' store price image has been advocated by academics and practitioners (Lourenço et al. 2015; Yoo, Donthu, and Lee, 2000). Since the data were collected at several purchase occasions in the panel, we consider the data as longitudinal data. As a result, we model these data as two-level or clustered data with occasions nested in subjects, in which case subjects become clusters. Since the households are seen as clusters, 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.

Table 1 presents the summary statistics of the variables. It shows that all variables are weakly correlated at the 0.05 level. Among the three variables, feature advertising and display are negatively correlated. In addition, all variables have similar mean. However, they differ in terms of standard deviation. As a result, those differences are suitable for examining their effects on SPI.

Table 1 – Variables' intercorrelations

	Price	Display	Feature
Price	1.0000		
Display	.114*	1.0000	
Feature	.079*	-.053*	1.0000
Mean	.01	.01	.01
SD	.009	.039	.047
N	3,426746	3,426746	3,426746

Note: *=0.05

2. Findings

We find clear evidence that brand's type and category characteristics moderate the relationship between price, promotions and SPI.

2.1 The role of brand type and category frequency

In terms of direct effects, we observe that display (β=.079, t=49.21, p<.001), feature advertising (β=.033, t=4.13, p<.001) positively influence SPI and NB (β=-.026, t=-14.06, p<.001) negatively affects SPI (Table 2).

Table 2 – Model estimation results for brands and category frequency

Variables	Coef.	Robust S. E.	t	P>t
Price	.0001	.0005	0.22	.822
NB_brand	-.0258	.0018	-14.06	.000
Brand_display	.0790	.0016	49.21	.000
Brand_feature	.0326	.0079	4.13	.000
PCE_PL_HF	-.0058	.0006	-9.51	.000
PCE_NB_HF	-.0185	.0008	-21.74	.000
PCE_NB_LF	-.0014	.0006	-2.42	.016
FEAT_PL_HF	.0107	.0086	1.25	.213
FEAT_NB_HF	.1096	.0083	13.19	.000
FEAT_NB_LF	.0498	.0093	5.31	.000
Cons	3.8465	.0093	3371.66	.000

Concerning the moderating impacts, the interactions price-PL (β=-.0058, t=-9.51, p<.001), price-NB (β=-.0185, t=-21.74, p<.001) and price-NB (β=-.0014, t=-2.42, p<.05) are negatively moderated by highly frequent categories and categories with low frequency. Nevertheless, the interaction between feature and NB (β=.1096, t=13.19, p<.001) is positively moderated by categories with high frequency. Finally we found that the categories exibiting low frequency have a positive impact on the interaction between feature and NB (β=.0498, t=5.31, p<.001).

2.2 The role of brand type and category penetration

We find clear evidence that brand's type and category penetration moderate the relationship between price, promotions and SPI (Table 3). In accordance with the direct effects, the findings reveal that display (β=.0687, t=14.23, p>0.05), feature advertising (β=.0480, t=2.83, p<.01) and PL (β=.0328, t=20.20, p<.001) positively influence SPI.

According to the moderating effects, the interactions price-PL (-.0059, -7.66, p<.001), price-NB (β=-.0164, t=-25.45, p<.001), display-PL (β=-.0618, t=-10.97, p<.001) are negatively moderated by highly penetrated categories. Quite the opposite, the interaction between display and NB (β=.0534, t=10.06, p<.001) and feature and NB (β=.0891, t=5.19, p<.001) are positively moderated by categories' high penetration.

Table 3 – Model estimation results for brands and category penetration

Variables	Coef.	Robust S. E.	t	P>t
Price	.0008	.0006	1.40	.161
Brand_display	.687	.0048	14.23	.000
Brand_feature	.0480	.0169	2.83	.005
PCE_PL_HP	-.0059	.0007	-7.66	.000
PCE_PL_LP	.0031	.0009	3.32	.001
PCE_NB_HP	-.0164	.0006	-25.45	.000
DIS_PL_HP	-.0618	.0056	-10.97	.000
DIS_PL_LP	-.0741	.0129	-5.73	.000
DIS_NB_HP	.0534	.0053	10.06	.000
FEAT_NB_HP	.0891	.0171	5.19	.000
Cons	3.8166	0.0012	2942.31	.000

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 of purchasers. In addition, while the low penetration of categories has a negative impact on the interaction display-PL (β=-.0741, t=-5.73, p<.001), it has a positive influence on the interaction between price and PL (β=.0031, t=3.32, p<.01).

Discussion

Our analysis advances the empirical research on the relationship between price/promotions and store price image in two key ways. First, our findings indicate that there is a positive relationship between display/feature, national brand and highly frequent categories as well as low frequent categories. This result underlines 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.

Second, the findings suggest that the synergies between price, private label, national brand and high category frequency as well as low category frequency have a negative impact (-1%, -2%, and -0.15% respectively) on SPI. Another important result is that the relationships between display, private label and high category penetration as well as low category penetration have a negative impact (-6% and -7.15% respectively) on SPI. At first, this result may seem counterintuitive because one might expect for example that private labels play a

greater role in the formation of SPI because previous research has shown the strong relationship between private label and store image (Semeijn, Van Riel, and Ambrosini, 2004). Indeed, our data indicate a positive main effect for PL. Our findings suggest that frequent use of price cuts causes consumers to infer low product quality. Similarly, our results suggest that frequent use of display can lead to a low perception of the product quality for consumers (Yoo et al. 2000), especially for PL.

The findings of this paper have some implications for retailers when they define strategic programs to the brands carried by the stores. The present study showed that display and feature have positive impact on SPI for national brand and among categories with high frequency, and that display/feature have positive impact on SPI for national brand and for categories with high penetration. The key implication is that retailers should attract consumers with national brands which generate store traffic, and therefore, spending.

The result that the link between price, private label, national brand and high/low frequency of category negatively affects SPI suggests that retailers are less effective in developping SPI under frequent price cuts.

Furthermore, result that the link between display, PL, and high/low category penetration has a negative influence on SPI suggests that retailers are less effective in developping SPI under frequent diplayed PLs.

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 frequency and penetration, the number of brands and the ability to stockpile 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, Hoch, and Kumar, 2001). Finally, further research is also needed to examine the effects of interactions in two main store formats: supermarket and hypermarket.

References

Bao, Y., Bao, Y., & Sheng, S. (2011). Motivating purchase of private brands: Effects of store image, product signatureness, and quality variation. *Journal of Business Research*, 64(2), 220-226.

Desai, K.K., & 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, S. K., Hoch, S. J., & Kumar, N. (2001). Effective category management depends on the role of the category. *Journal of Retailing*, 77(2), 165-184.

IRI (2015). Private Label & National Brands: Dialing in on Core Shoppers. Accessed September 22, 2015, from https://www.foodinstitute.com/images/media/iri/TTJan2015.pdf

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

Lalwani, A. K., & Monroe, K. B. (2005). A reexamination of frequency-depth effects in consumer price judgments. *Journal of Consumer Research*, 32(3), 480-485.

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

Semeijn, J., Van Riel, A., & Ambrosini, A. (2004). Consumer Evaluation of Store Brands: Effects of Store Image and Product Attributes. *Journal of Retailing & Consumer Services*, 11(4), 247-258.

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

Zimmer, M. R., & Golden, L. L. (1988). Impressions of retail stores: A content analysis of consumer images. *Journal of retailing*, 265-293.