

ROLE OF RETAILER POSITIONING AND PRODUCT CATEGORY ON THE RELATIONSHIP
BETWEEN STORE BRAND CONSUMPTION AND STORE LOYALTY

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Abstract

Recent empirical evidence regarding the relationship between store brand purchase and store loyalty suggests a nonmonotonic relationship (inverted U): positive up to a certain store brand consumption level, after which it becomes negative. To investigate this idea further, this research analyzes the role of (1) the retailer's competitive positioning, and specifically its price positioning, and (2) the product category. On the one hand, the more price oriented the retailer's positioning, the more favorable is the relationship between store brand consumption and store loyalty. The threshold level of store brand purchasing at which the relationship becomes negative occurs later, and this negative relationship is less prominent. On the other hand, the relationship between store brand consumption and store loyalty appears to differ across product categories as a consequence of several factors, including perceived risk. The relationship therefore appears more favorable for risky categories. An empirical study of ten retailers that adopt different price positions corroborates these propositions.

Keywords

Store brands; national brands; brand share; store loyalty; retailer's positioning; product category

The recent growth of store brands has significantly influenced the retail industry, especially in the context of nondurable consumer goods; the modern economic downturn may induce further growth (Lamey et al. 2007). Various research efforts have analyzed the potential of store brands to improve retail performance, including how the effective marketing of store brands might differentiate a retailer in the marketplace (Richardson, Dick, and Jain 1994) and thereby enhance customer loyalty, sales, and, eventually, the retailer's profitability (Baltas, Argouslidis, and Skarmeas 2010; Corstjens and Lal 2000; Steenkamp and Dekimpe 1997; Sudhir and Talukdar 2004). From a more general perspective, recent research has analyzed whether brand mix management might enhance store loyalty and retail performance (Grewal, Levy, and Lehman 2004; Mantrala et al. 2009; Sloot and Verhoef 2008). Other studies consider the relationship between store brand consumption and store loyalty from an opposite perspective, with the recognition that store loyalty relates to familiarity with, attitude toward, and trust in the retailer, as well as ultimately to the evaluation and acceptance of its private-label brands (Ailawadi, Pauwels, and Steenkamp 2008).

Whatever the direction of causality though, most contributions in this field focus on testing a monotonic relationship between in-store private-label share and store loyalty. The findings are not conclusive: Some studies find direct relationships, others find inverse relationships, and still others do not find any relationship. Ailawadi, Pauwels, and Steenkamp (2008) propose a nonmonotonic relationship between in-store private-label share and store loyalty, which is positive up to a threshold level of store brand loyalty and negative thereafter (inverted U). Their findings for two retail chains in Holland support this assertion, but because private-label strategies differ across retailers in terms of their value propositions and category focus (Choi and Coughlan 2006; Kumar and Steenkamp 2007; Sayman and Raju 2004), they call for further research to assess whether their findings generalize to other countries and formats. In response to this call, as the first objective of this study, we test the nonmonotonic relationship between store brand purchases and store loyalty for top retailers operating in the Spanish grocery market, which employ different formats and competitive positioning tactics.

Moreover, we extend this idea to analyze the role of a retailer's competitive price positioning on the

relationship between store brand purchases and store loyalty—a research question with increasing relevance as discount retailers evolve in contemporary markets. Discounters such as Walmart, Aldi, and Lidl challenge and distinguish themselves from traditional retail formats (*BusinessWeek* 2003) by adopting a low-price strategy, relying heavily on their own brands, and offering a relatively limited number of stockkeeping units (SKUs) in each category (IGD Research 2007). The close relationship between store brands and discounters also has prompted Kumar and Steenkamp (2007) to define a store brand profile linked to this business model.

As these developments imply, retail price positioning affects the offer of private labels and customers' motivations to purchase them: Price-oriented retailers tend to develop price-oriented store brand strategies, and their customers tend to be more price sensitive. Therefore, we expect that retailer positioning influences the relationship between store brand purchases and store loyalty. In particular, when a retailer's positioning focuses on price (e.g., discounters), the relationship between store brand consumption and store loyalty may be more favorable. Within the predicted nonmonotonic relationship (inverted U), the threshold level of store brand purchasing at which the relationship turns negative occurs later, and this negative relationship should be less prominent when the retailer focuses mainly on a price instead of quality positioning. Therefore, as a second research objective, we provide a theoretical argument and empirical evidence about the moderating effect of retailers' competitive price positioning on the relationship between in-store private-label share and store loyalty.

We also analyze the role of the product category on the relationship between store brand consumption and store loyalty. Corstjens and Lal (2000) call for research to extend the analysis of store brand share and store loyalty to multiple categories; Ailawadi, Pauwels, and Steenkamp (2008) suggest that modeling the influence of the product category could be a fruitful area of research, but no cross-category comparative studies have been published yet. Product categories can determine a store's potential to engender differentiation, the importance of branding to customers, and customers' price sensitivity, because the different categories entail different levels of perceived risk. As a consequence, we posit that the relationship between store brand consumption and store loyalty differs across

categories. In particular, the relationship turns negative later and is less extreme when the private-label product represents a risky category. Therefore, as a third objective, we attempt to provide a theoretical foundation and empirical evidence about this moderating effect of product category on the relationship between in-store private-label share and store loyalty.

Our analysis of ten leading retailers operating in the Spanish grocery market enables us to test our proposed hypotheses. We use data from a household panel, which conditions our research scope. That is, our research contribution pertains to the shape of the relationship between private-label purchases and store loyalty and the moderating role of a retailer's price positioning, not the direction of causality of that relationship. Our data do not include enough information to isolate the directions of causality. Moreover, we employ a behavioral perspective and measure store loyalty as shopping budget concentration with the retailer. Prior literature has conceptualized loyalty as the relationship between a consumer's relative attitude and patronage behavior (Dick and Basu 1994), and Chauduri and Ligas (2009) provide evidence regarding the relevance of both loyalty dimensions for retail performance. Analogously, we focus on the share of wallet that consumers grant to the store brands of each retailer.

In the next sections, we present a review of previous research and offer some theoretical support for our proposed hypothesis. After we describe the methodology for our empirical analysis, we present and discuss the findings. Finally, we outline our main conclusions and some implications.

Store Brand Consumption and Store Loyalty

Store brands are offered exclusively by the retailers that own them, which means they can differentiate the owner from other retailers. According to this perspective, by contributing to retailers' differentiation, store brands foster customers' store loyalty (Collins-Dodd and Lindley 2003; Dhar, Hoch, and Kumar 2001; Richardson, Jain, and Dick 1996). This claim receives extensive empirical support (Ailawadi, Neslin, and Gedenk 2001; Baltas, Argouslidis, and Skarmas 2010; Bonfrer and Chintagunta 2004; Kumar and Steenkamp 2007; Sudhir and Talukdar 2004). Corstjens and Lal (2000) suggest that store brands can generate store differentiation if consumers accept that the store brand offers sufficient quality. They also note another possible reason for the positive association between store brand

purchase and store loyalty: the development of a global store brand strategy across many product categories. When customers purchase store brands in many categories, they may exhibit less propensity to visit other stores because of the high switching costs involved in moving beyond their store brand–based purchase inertia across various product categories.

In contrast, some private labels emphasize price discounts in comparison with national labels, which could cause them to attract price-conscious customers who shop across stores to find the best price option. According to this alternative perspective, store brand purchases relate inversely to store loyalty; Ailawadi and Harlam (2004) find that heavy store brand buyers spend significantly less with the retailer than do light store brand buyers, perhaps because heavy store brand buyers shop at multiple stores and are loyal to store brands in general, not to the store brand of a particular store (Richardson 1997). According to Baltas, Argouslidis, and Skarmeas (2010), consumers' store brand proneness increases the size of their patronage set; Hansen and Singh (2008) also find that high store brand patronage across multiple categories is associated with lower store loyalty. The underlying argument behind this inverse relationship is that store brand users are more price sensitive than average consumers (e.g., Dick, Jain, and Richardson 1995; Hansen, Singh, and Chintagunta 2006; Sethuraman 2006).

The foregoing arguments rely on the assertion that store brand share influences store loyalty, because the store brand differentiates retailers or is a convenient price option that attracts price-oriented shoppers. However, the opposite direction of causality is also plausible: Store loyalty could be an antecedent of store brand consumption, such that customers who are loyal to the retailer exhibit a greater propensity to choose its store brand. In recent work, Ailawadi and colleagues (2008) argue that this effect stems from the relationship between store loyalty and customer familiarity with and positive attitude toward the store, which then transfers to the store's private labels.

Theoretical arguments and previous empirical evidence thus support both a direct and a contrasting relationship between store brand purchase and store loyalty. We propose a framework to integrate these complex and conflicting perspectives, including Ailawadi, Pauwels, and Steenkamp's (2008) suggestion of a nonmonotonic relationship. The positive relationship between store brand share and

store loyalty may improve up to a certain point of sales of the store brand, but it may turn negative past a certain threshold (inverted U). This proposed relationship distinguishes various store brand share levels: At low levels, customers rarely purchase store brands, so the retailer's store brands cannot ensure customer retention. These rare purchases also may imply a lack of trust in the retailer. In this situation, retailer loyalty probably is quite low. However, when customers purchase moderate levels, they begin to differentiate among and select store brands in specific product categories. Therefore, their selection of store brands may not be based exclusively on price convenience but also could reflect their quality evaluations. If customers recognize store brand quality in some categories, the retailer may achieve differentiation and enjoy greater store loyalty. Alternatively, loyal customers may have favorable attitudes toward the retailer that make them more receptive to its private labels, as long as the brands satisfy their quality standards. Because it is difficult to develop private labels that meet customers' expectations in all categories, these customers likely exhibit a moderate level of private-label consumption. Finally, high store brand purchase levels imply that customers do not differentiate or select store brands in specific categories; instead, they choose solely on the basis of price. These customers may not differentiate across retailers, because they pursue the best price, regardless of who sells it. In short, retailer loyalty should be low among these consumers.

Although Ailawadi, Pauwels, and Steenkamp (2008) provide some evidence to support this suggested curvilinear relationship, we require more empirical evidence. Therefore, our first hypothesis replicates this recent proposal:

H1: The relationship between in-store private-label share and store loyalty is nonmonotonic; it is positive up to a certain store brand share level, after which it becomes negative (inverted U shape).

Retailer Price Positioning

Consumers generally consider the store's price image when they choose among store formats (Pan and Zinkhan 2006; Rhee and Bell 2002). Lichtenstein, Ridgway, and Netemeyer (1993) emphasize that price remains one of the most important marketplace cues, largely because price cues are present in almost all purchase situations. Retailers employ different price positioning strategies to attract specific types of

customers to their stores. Although consumers might have little knowledge of the individual prices of products, they recognize certain price distinctions in different stores (Alba et al. 1994; Dickson and Sawyer 1990). With regard to our proposition that the retailer's price positioning affects the relationship between store brand share and store loyalty, we recognize two circumstances:

- Customers of retailers that focus on price should tend to be more price sensitive. For example, Moore and Carpenter (2006) find a positive relationship between price-conscious consumers and the choice of stores that implement low-price strategies. Price appears to be a dominant determinant of store choice among discount shoppers (Deleersnyder et al. 2007).
- A store brand strategy often aligns with a retailer's price-quality positioning. Although store brands may offer more convenient price options than do manufacturer brands, their value proposition varies as a function of their emphasis of quality versus price. Kumar and Steenkamp (2007) therefore differentiate three store brand strategies—generics, copycats, and premium store brands—according to their increasing focus on quality and diminishing attention to price. Although these strategies may be available within the same store, their coexistence should be less feasible when the retailer's positioning centers increasingly on price. That is, a store brand strategy focused on quality likely cannot coexist with a store positioning that relies on price. In line with this argument, Dhar and Hoch (1997) find that stores that adopt an everyday low price (EDLP) positioning tend to sell store brands that rely more on price, as is particularly evident among retail discounters.

The relationship among the retailer's price positioning, the customer's price sensitivity, and the store brand's focus on price implies some variations in the arguments about the nonmonotonic relationship between store brand consumption and store loyalty. First, when customers consume moderate levels of store brands and appear to differentiate among store brands in various product categories, they likely evaluate quality levels in addition to price convenience. Therefore, the recognition of store brand quality in some categories may constitute an element of differentiation for the retailer and help foster customer store loyalty. In the reverse direction, loyal customers should have a more favorable perception of the

retailer and be more inclined to adopt private labels for those categories in which the brands satisfy their quality requirements, which implies moderate levels of store brand consumption. However, in a store focused on price, customers are more price oriented, with lower quality requirements, so the store brand may meet their requirements in more categories. This circumstance supports both potential directions of causality: Higher store brand purchase levels imply store loyalty, because store brands clearly contribute to the retailer's price differentiation strategy; store loyalty implies higher store brand purchase levels, because store brands align better with customer expectations. Therefore, regardless of the direction of causality, the store brand purchase level at which the relationship with store loyalty turns negative is higher.

Second, when customers purchase more store brands, they choose their shopping basket solely on the basis of price, with minimal store loyalty. But a store oriented solely toward price may be able to keep consumers from searching for more favorable prices elsewhere because it satisfies these low price searchers across different product categories. In other words, a price-oriented consumer who purchases private labels because they are convenient price options has less incentive to switch retailers when he or she patronizes a price-oriented retailer, whose private labels tend to satisfy his or her price requirements across most product categories. In this situation, higher purchase levels of store brands may not hinder store loyalty as much.

The reasoning underlying this discussion matches Baltas, Argouslidis, and Skarmas's (2010) finding of two latent segments of customers who differ in their loyalty inclinations because of their different perceptions of costs and benefits. In our context, the loyal segment seems to consist of quality-driven customers, whereas the less loyal segment features mainly price-oriented customers. The downward part of the relationship between private-label consumption and store loyalty depends on the latter, price-oriented consumers, who purchase private labels from multiple retailers because they appreciate these convenient price options. In contrast, the upward part of the relationship depends on the former, quality-driven consumers, who adopt private labels only if those products meet their quality requirements. Such private-label adoption is not indiscriminate but selective, because private labels only

manage to satisfy quality-driven customers' requirements in some categories. Therefore, the negative part of the relationship should appear later, assuming private labels match consumers' expectations. In addition, this negative relationship should be less prominent when the store's positioning gives price-oriented customers little incentive to visit other retailers. Price-oriented retailers mainly attract price-oriented consumers and develop price-oriented private labels, so they meet the conditions in which we expect the relationship between private-label consumption and store loyalty to be more favorable. The private labels match customers' price expectations across many product categories, and these customers are less prone to switch retailers to find better price offers. Therefore, we posit that the nonmonotonic relationship between store brand consumption and store loyalty shifts as a function of the retailer's price positioning. We test the following hypothesis empirically:

H2: The relationship between store brand share and store loyalty is more favorable but still nonmonotonic when the retailer adopts a more price-oriented position. The level of store brand share that induces a negative relationship with store loyalty occurs later, and the relationship is less prominent when the retailer's positioning focuses on price instead of quality.

Product Category

Previous literature has noted that private labels' success varies across categories (e.g., Batra and Sinha 2000; Hansen, Singh, and Chintagunta 2006; Hoch and Banerji 1993; Quelch and Harding 1996; Raju, Sethuraman, and Dhar 1995), for several possible reasons. Narasimhan and Wilcox (1998) take a consumer perspective and argue that consumers prefer national brands to store brands if the relative risk of purchasing within the category seems high. Therefore, the risky nature of product categories should relate to store brand success.

Prior studies interpret store brand success as market penetration by store brands in each category, but we complicate the analysis by considering a different measure of store brand success. We are interested primarily in private-label performance in specific categories as it relates to store loyalty. On the one hand, private labels, as part of the retail assortment, affect the retailer's image, offer an important basis for differentiation, influence customers' loyalty, and thus help determine retail brand

equity (Ailawadi and Keller 2004). Because some categories are more relevant to consumers, due to their greater perceived risk (Kapferer and Laurent 1985; Laurent and Kapferer 1985), they strongly influence the positioning of the store in consumers' minds. When consumers purchase store brands in these categories, their experience also should relate closely to their recognition of store brand quality and store loyalty. On the other hand, familiarity and trust developed through store loyalty might precede store brand consumption. In this case, consumers are sensitive to the guarantee that branding offers in categories they perceive as risky (Batra and Sinha 2000; Narasimhan and Wilcox 1998), so their adoption of store brands should depend more on whether they trust the retailer. Store loyalty in relation to risky product categories therefore might reflect store brand adoption and consumption. Ailawadi, Pauwels, and Steenkamp (2008) similarly suggest that increased private-label share in risky categories (e.g., desserts, beauty products) is more critical than the share in other categories (e.g., dry goods, household paper products). We thus predict that perceived risk creates a more favorable relationship between private-label share and store loyalty and propose:

H3: The relationship between store brand share and store loyalty differs across product categories and is more favorable though still nonmonotonic for risky products. The level of store brand share that induces a negative relationship with store loyalty occurs later, and the relationship is less prominent when the product category is more risky.

Study Scenario and Data

To analyze the role of the retailer's price positioning and the product category on the relationship between store brand consumption and store loyalty, we focus on ten retail chains that operate in the Spanish retailing industry: Mercadona, Carrefour, Eroski, Alcampo, Dia, Hipercor, Caprabo, Lidl, Dinosol, and Consum. The 2008 Annual Food Distribution Report (Alimarket 2008) ranks these chains in the first ten positions, respectively, in terms of their sales value in the Spanish market. Among these retailers, we also can distinguish between discounters and other retailers. Dia and Lidl both are discounters, but whereas Lidl employs a hard discount strategy, Dia follows a soft discount strategy. This traditional classification in the European market notes that hard discounters have a more limited

product range, are more focused on dry goods, and have a narrower national brand assortment than do soft discounters (IGD Research 2007). The Mercadona supermarket chain uses an EDLP strategy, whereas the other seven nondiscount retailers follow a high/low pricing (Hi-Lo) strategy. Each retailer adopts its own private-label strategy, which we describe briefly in Table 1. The sample thus includes a broad range of retailers that vary in their characteristics.

*** INSERT TABLE 1 ***

Our empirical analysis contains data pertaining to food, household, and personal care products purchased by a sample of more than 2,622 households that effectively represent the Spanish population, as provided by a TNS household panel. Our data cover a period from the second half of 2007 to the first half of 2008. The available data consist of aggregated purchasing patterns by households throughout the studied period and indicate total expenditures, total expenditures in private labels, expenditures with each (top 10) retailer, and expenditures on all private labels offered by each (top 10) retailer. These aggregated expenditure data also are available for the three broad product categories that define the scope of the panel data, that is, food, household, and personal care products.

The available data enable us to compute the share of wallet of each household devoted to each retail chain. We use this measure of store loyalty as the dependent variable for each retailer. That is, we adopt a behavioral perspective in which we assume that loyalty relates to a household's resource allocation to a particular retailer (Ailawadi, Pauwels, and Steenkamp 2008; Bustos-Reyes and González-Benito 2008; East et al. 1995; Knox and Denison 2000; Mägi 2003), which is also the most common measure used to assess the relationship between store brand consumption and store loyalty (Ailawadi, Pauwels, and Steenkamp 2008; Corstjens and Lal 2000; Sudhir and Talukdar 2004). Unfortunately, data limitations prevent us from exploring other measures, such as the share of shopping trips, share of total items purchased, or attitudinal links between buyers and brands or stores. However, Ailawadi, Pauwels, and Steenkamp (2008) find consistent results across some alternative measures.

The independent variables relate to store brand consumption and other control variables that serve to characterize each household's sociodemographic profile. We compute store brand consumption by

measuring the share of wallet devoted to the retailer that the customer allocates across all store brands offered by that retailer (i.e., share of wallet to store brands). We compute this variable for all categories and separately for the food, household, and personal care categories. Household sociodemographic information comes from the household panel; we obtain information about each household's social class, size, and presence of children younger than 6 years. We split the social class measure into four socioeconomic groups: low (social class 1), medium-low (social class 2), medium (social class 3), and high-medium to high (social class 4). As a complementary control variable, and in line with Ailawadi, Pauwels, and Steenkamp (2008), we add a measure of store brand propensity. For each retailer, we compute the store brand expenditures a customer grants to competing chains, divided by the total expenditures of the customer in those other chains.

In Table 2, we summarize the expenditures, sociodemographic profiles, and price levels of each retailer's customers. Customers in this sense are households with greater than zero expenses for that retailer during the study period.

*** INSERT TABLE 2 ***

In addition, to quantify the price positioning of retailers, we use data about these retailers' price levels, as published by the Consumers and Users Organization (OCU 2008), which conducts an annual price comparison of retailers in the Spanish market. In 2008, the OCU study included data about 800 geographically dispersed stores belonging to 67 retail chains and compared the prices for a basket of products that a normal Spanish family likely would purchase. Furthermore, it included two price indexes that differ in overall cost. The normal basket contains well-known brands, to represent consumers who prefer well-known to low-price brands. The cheap basket consists of the same products but with cheaper brands instead of the well-known versions, with the assumption that consumers concerned with savings would prefer this basket. Using these data, the OCU built price indexes for each store and, through aggregation, for each retail chain. A value of 100 represents the cheapest store, so a store with a 115 index charges 15% more than does the cheapest store. We report both price indexes for the 10 analyzed retailers in Table 2; however, the limited product assortment offered by the hard discounter

Lidl prevents a price index value for the normal basket.

Analysis and Discussion

We propose an integrative model that enables us to assess the relationship between store brand consumption and store loyalty for all top ten retailers considered in our data. Because our dependent variable relies on a share measure, we use a logit-type model adapted to the resource allocation context. Therefore, we propose:

$$\pi_{ij} = \frac{e^{U_{ij}} \cdot \delta_{ij}}{\sum_{j \in J} e^{U_{ij}} \cdot \delta_{ij}}, \quad [1]$$

where π_{ij} indicates the share of wallet spent at the retailer j by household i ; U_{ij} denotes the utility attributed to retailer j by household i ; and J represents the set of competing retailers. Because our analyses focus exclusively on the sample of customers of each retailer, δ_{ij} takes the value of 1 if household i is a customer of retailer j , and 0 otherwise. Therefore, the parameter estimation for each retailer is based solely on its customers.

For each retailer j , we assume its utility is determined by the explanatory variables of interest. In particular, we propose:

$$U_{ij} = \alpha_j + \lambda_j Z_i + \psi_j SBP_{ij} + \beta_j LSB_{ij} + \gamma_j LSB_{ij}^2, \quad [2]$$

where α_j is a parameter that quantifies the average customer loyalty toward retailer j ; Z_i is a vector of control variables that characterize the household's sociodemographic traits (i.e., social class, household size, and presence of children); λ_j is a vector of parameters for estimation that captures the effect on retailer j ; SBP_{ij} measures store brand propensity for household i and retailer j ; ψ_j is a parameter that quantifies the effect on loyalty to retailer j ; LSB_{ij} measures the share of wallet devoted to a store brand in retailer j by household i ; and β_j and γ_j are parameters that capture the direct and quadratic effects, respectively, on loyalty toward retailer j . Because we focus exclusively on the top ten retailers in the Spanish market, other retailers represent additional competitors that provide a reference for the parameter estimation, with null parameters ($U_{ij} = 0$).

This explanatory configuration assumes a nonmonotonic relationship between store brand consumption and store loyalty. To test for nonmonotonicity, we also estimated a restricted monotonic version in which the parameters γ_j are fixed to 0. Analogously, this explanatory configuration assumes that the relationship between store brand consumption and store loyalty is specific to each retailer. To test differences across retailers, we estimated a restricted version in which the parameters β_j and γ_j are equal across retailers (i.e., we consider β and γ instead of β_j and γ_j).

Our model estimation also employs an adaptation of the maximum likelihood procedure for the qualitative dependent variables and maximizes the following likelihood function:

$$L = \prod_i \prod_{\substack{j \in J \\ \eta_{ij} \neq 0}} \pi_{ij}^{\eta_{ij} \cdot n_i}, \quad [3]$$

where η_{ij} indicates the share of wallet spent at retailer j by household i , and n_i denotes the number of retailers patronized by household i .

In Table 3, we report the estimation results for the proposed model. With respect to store brand share, we recognize that the squared effect is negative and significant for all retailers, which implies an inverted U-shaped relationship. Moreover, the proposed model significantly improves on the restricted monotonic version. This finding corroborates the results offered by Ailawadi, Pauwels, and Steenkamp (2008) in two Dutch store chains. Therefore, our results support H1. In Figure 1, we present the estimated nonmonotonic form, in which we assume null values for the rest of variables.

*** INSERT TABLE 3 and FIGURE 1 ***

In Table 3, we also show that the proposed model significantly improves on the restricted version, in which we assumed that the effects of store brand consumption were the same across retailers. Therefore, the relationship between store brand consumption and store loyalty differs across retailers. The store brand consumption level at which store loyalty begins to decrease falls between 20–40% for most stores, but for discounters such as Dia, the point is 50%, and for hard discount stores (e.g., Lidl), the value reaches approximately 60%. Also, the curve takes a rounder, or less sharp, form for discounters than for the other retailers. Therefore, Figure 1 is in line with our proposed H2: In a

nonmonotonic context, the level of store brand share at which the relationship becomes negative occurs later, and the negative relationship diminishes when the retailer's positioning focuses more on price.

To determine the generalizability of this observed effect for discounters, we undertake a formal test in which we compare estimated curves with the price positioning of the retailers, as represented by the price levels provided by OCU (2008). First, we correlate the price levels with the maximum of the function in Figure 1 (at $-\gamma/2\beta$). The Pearson's correlation, Kendal's Tau, and Spearman's rho for the normal basket are $-.45$, $-.29$, and $-.48$, respectively. For the cheap basket, these values are $-.51$, $-.54$, and $-.64$. The negative correlation signs indicate that higher price levels involve lower maxima. In other words, the store brand consumption level at which the relationship with store loyalty turns negative comes later, when the chain's price level is lower, in support of H2.

Second, we correlate the price levels with the curvature of the function (γ value). The Pearson's correlation, Kendal's Tau, and Spearman's rho are $-.33$, $-.29$, and $-.48$ for the normal basket and $-.35$, $-.49$, and $-.61$ for the cheap basket, respectively. In this case, the negative signs suggest that higher price levels involve a steeper curve, such that the inverse relationship between store brand consumption and store loyalty has a lesser effect when the store's price level is lower, again in support of H2.

To test the relationship across product categories, we consider three broad, heterogeneous product categories—food, household, and personal care products—that include various specific product lines. We posit that the food category includes less risky categories (e.g., salt, bread, flour, milk, meat, fruit) than the household and personal care categories (Chaudhuri 2000; Kapferer and Laurent 1985). Furthermore, the personal care category includes more risky categories (e.g., cosmetics, toothpaste, hair products, body products, facial soap, feminine protection, razor blades, perfume, pharmacy items) than the food and household categories (Batra and Sinha 2000; Chaudhuri 2000; Laurent and Kapferer 1985; Narasimhan and Wilcox 1998). The household goods category (e.g., cleaning products, fabric softener, air freshener) is more risky than food but less risky than personal care items. This categorization reflects the findings of an empirical test, as described in the appendix. In accordance with

H3, we predict that the relationship between store brand consumption and store loyalty should be less favorable for less risky food purchases, whereas the relationship should be more favorable for more risky personal care products.

We extend our previous model by assuming that utility can be determined simultaneously by store brand shares in each studied category:

$$U_{ij} = \alpha_j + \lambda_j Z_i + \psi_j SBP_{ij} + (\beta_j + \delta_{Fj}) LSBF_{ij} + (\gamma_j + \varepsilon_{Fj}) LSBF_{ij}^2 + \beta_j LSBH_{ij} + \gamma_j LSBH_{ij}^2 + (\beta_j + \delta_{Pj}) LSBP_{ij} + (\gamma_j + \varepsilon_{Pj}) LSBP_{ij}^2, \quad [4]$$

where $LSBF_{ij}$, $LSBH_{ij}$, and $LSBP_{ij}$ denote the share of wallet devoted to store brands in retailer j by household i for food, household, and personal care products, respectively; δ_{Fj} and ε_{Fj} are parameters that capture the difference between food and household products regarding, respectively, direct and quadratic effects on loyalty toward retailer j ; and δ_{Pj} and ε_{Pj} are parameters that capture the difference between personal care and household products regarding, respectively, direct and quadratic effects on loyalty toward retailer j . This explanatory configuration assumes that the relationship between store brand consumption and store loyalty is specific for each product category. To test for differences across categories, we also estimated two restricted versions in which (1) the parameters δ_{Fj} and ε_{Fj} are 0, which implies no differences between food and household categories, and (2) the parameters δ_{Pj} and ε_{Pj} are 0, such that there are no differences between household and personal care categories.

In Table 4, we report the estimation results. The proposed model outperforms the restricted version in which we assume no differences between food and household categories. That is, we find significant differences between categories. For all retailers, the store brand share level at which the maximum occurs is higher for household products $(-\beta_j/2\gamma_j)$ than for food products $(-(\beta_j+\delta_{Fj})/2(\gamma_j+\varepsilon_{Fj}))$. Moreover, the ε_{Fj} parameters are significant and negative for eight of the ten retailers. Such differences in the curvatures mean that the negative relationship is less prominent for household than for food categories.

Analogously, the estimated model outperforms the restricted version in which we assume no differences between household and personal care categories; we again find significant differences between categories, though they are less intense than in the previous case. For nine of the ten retailers,

the store brand share level at which the maximum occurs is higher for personal care products ($-(\beta_{j+}\delta_{Pj})/2(\gamma_{j+}\varepsilon_{Pj}))$) than for household products ($-\beta_j/2\gamma_{j+}$). Moreover, the ε_{Fj} parameters are significant and positive for seven of the ten retailers. Such differences mean that the negative relationship is less prominent for personal care than for household categories.

Overall then, we find that for most retailers the effect of store brand consumption on store loyalty is more favorable for household products than for food products. For most retailers, the effect of store brand consumption on store loyalty also is more favorable for personal care products than for household products. We define “more favorable” as outlined on our preceding discussion: The store brand share at which the effect begins to be negative for store loyalty occurs later, and the negative effect is less prominent. In Figure 2, we graphically represent the estimated effects, in which we assume null values for the rest of variables. This result supports H3.

*** INSERT TABLE 4 and FIGURE 2

Conclusions

To investigate the relationship between store brand consumption and store loyalty, we consider the role of the retailer’s pricing policy and the product category. Our theoretical and empirical investigation supports a nonmonotonic relationship between store brand share and store loyalty (Ailawadi, Pauwels, and Steenkamp 2008) in ten store chains representative of the Spanish retail grocery sector. The relationship between private-label consumption and store loyalty is positive up to a certain threshold for the private-label share and negative thereafter. Furthermore, we corroborate the role of the retailer’s price positioning on this relationship. With a price- rather than quality-oriented positioning, the relationship between store brand consumption and store loyalty is more favorable, such that the store brand share at which the relationship begins to be negative occurs later, and the negative relationship is weaker. Moreover, we find significant differences across categories in this relationship between in-store private-label consumption and store loyalty. It appears more favorable for personal care products than for household products and for household products than for food products. In this case, more favorable still implies that the negative relationship occurs later and is less significant. Therefore, we conclude that

the relationship between store brand share and store loyalty is more favorable for risky product categories.

These findings suggest several interesting interpretations and implications. First, store brands can contribute effectively to a retailer's performance, at least in terms of store loyalty. However, retailers cannot rely unconditionally on their store brands; rather, they need to determine an appropriate balance between private and national brands. The same applies to price-oriented retailers, though to a lesser extent. An intensive store brand strategy may align better with this business model, yet even these retailers cannot ignore the important role of national brands. Current trends reflect this result; for example, hard discounters such as Lidl recently started adding manufacturer brands to their assortments to improve their profitability (ICE 2008; IGD Research 2008).

Second, reverse causality should be borne in mind when designing the store brand strategy. The adoption of store brands by consumers may be a consequence of their store loyalty. Customers' perception of store brands inherently relates to their perception of the retailer, so the success of a private-label strategy likely depends on its coherence with the retailer's positioning. This relation should be a driving force when retailers develop their strategies.

Third, the nonmonotonic relationship between private-label share and store loyalty seems to reflect the balance of price-conscious versus quality-driven customers of a store. The latter, loyal customers initiate the positive relationship; the former are not loyal customers and therefore prompt the downward slope. Baltas, Argouslidis, and Skarmelas (2010) also find two observationally equivalent, latent segments that differ in their loyalty inclinations. Therefore, when developing store brand portfolios, retail managers should try to target both kind of customers to optimize store brand performance.

Fourth, the positive relationship between store brand consumption and store loyalty seems more difficult to maintain when the retailer's positioning focuses on quality; the negative relationship begins at a lower level of store brand share. This result may reflect the difficulty associated with developing store brands that satisfy customers' quality expectations across multiple product categories. By enhancing the quality of store brands and ensuring they are coherent with their existing quality positioning, stores

might minimize this negative relationship. Furthermore, store brands initially focused predominantly on low prices, but many have evolved to adopt quality standards similar to those of national brands. The most recent step in this evolution has produced premium store brands that are growing quickly, both in Spain and internationally (Geyskens, Gielens, and Gijsbrechts 2010; González-Suárez and Rubio-Benito 2006; Zimmerman, Kesmodel, and Jargon 2007). This trend presumably may induce a more favorable relationship between store brand loyalty and store loyalty

Fifth, retailers cannot ignore the relationship between store brand consumption and retail performance, nor should they forget the important influence of specific product categories on this relationship. A private-label retail strategy should acknowledge the varying potential of different product categories to establish store differentiation and stimulate store loyalty. Consumers' purchase behavior in different categories of store brands also might have varying effects on their store loyalty, especially in relation to the risky nature of the product categories. A private-label strategy in turn should acknowledge store brand loyalty in risky categories may depend on the customers' prior trust in the retailer or their loyalty to the store.

Some limitations of this study also suggest further research directions. We investigate loyalty from a behavioral perspective (i.e., concentration of a household's shopping budget in particular stores or store brands); an attitudinal measure could provide further insights into the possible affective links between customers and stores. Nor do we consider other store loyalty determinants, such as store proximity, which could help explain customers' spending patterns (Bell, Ho, and Tang 1998; González-Benito, Bustos-Reyes, and Muñoz-Gallego 2007). This approach admittedly might induce an estimation bias in the store brand effect.

In addition, our data do not allow us to isolate directions of causality in the relationship between store brand consumption and store loyalty. The analysis could benefit from richer data, including suitable instrumental variables (Ailawadi, Pauwels, and Steenkamp 2008), or an experimental design that can isolate the causal effects. Nor do our data support a more refined analysis across product categories. An analysis of narrower product categories could help clarify the role of perceived risk as a

determinant of cross-category differences.

Finally, our results require replications in other markets, chains, and retail sectors. Further research could explore other retailer attributes that moderate the relationship between store brand consumption and store loyalty (e.g., service, quality, assortment) or adopt a consumer perspective to address the relationship for different types of customers. It may be particularly interesting to investigate the potential moderating role of customer price sensitivity or budget allocation patterns across categories.

Appendix

This research tests the role of perceived risk on the relationship between store brand share and store loyalty (H3) by considering three broad product categories with increasing levels of perceived risk, namely, food, household, and personal care products. To provide evidence for our assumption about the order of increasing perceived risk, we conducted an empirical analysis. A questionnaire was administered to a representative sample of Spanish households through an online survey panel. The person in charge of grocery purchases within the household was asked to quantify the perceived risk for one of the three categories, randomly selected for each household. We obtained 443 valid responses: 165 for food, 154 for household, and 124 for the personal care category.

The perceived risk measure, adopted from prior literature (Bettman 1975; Dunn, Murphy, and Skelly 1986; Peter and Tarpey 1975; Jacoby and Kaplan 1972; Richardson, Jain, and Dick 1996; Roselius 1971), comprised six dimensions: performance, financial, social, physical, psychological, and time risk. For each dimension, we measured perceived risk as the product of the probability of loss and the importance of that loss, were it to occur. Total risk then was the sum of the perceived risk across all six dimensions. Both probability and importance of loss used seven-point Likert-type scales to measure the items listed in Table A1.

The comparison across categories in Table A2 reveals that the total perceived risk results are in line with our assumptions: The highest perceived risk relates to the personal care category, and the lowest is for the food category. Paired differences are significant at least at the 90% confidence level. The differences are mainly due to performance, social, physical, and psychological risk. Moreover, physical

risk clearly separates the food category from the household and personal care categories; psychological risk clearly separates the personal care products from household and food products.

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Table 1.

Description of Retailers' Private-Label Strategies

MERCADONA	Has a developed a different quality-oriented private label for each broad category: Hacendado in the food category, Bosque Verde in the household category and Deliplus in the personal care category. These three labels capture most of the purchases of store brand, although it also offers other private labels in specific categories (e.g. beers or deodorants).
CARREFOUR	Has a developed a two-tier private label strategy focused on food and household products: Number 1 as generic and Carrefour as copy-cat. Recently, it has launched several premium labels that focus on food products and differ across categories (Carrefour Selection, Carrefour Eco-Bio and Carrefour Non-Gluten). Carrefour and Les Cosmetiques are the private labels in the personal care category. They also offer other minor private labels in specific categories.
EROSKI	Eroski is its private label across most categories. It is a quality-oriented store brand that could be classified as copy-cat. It also offers other minor private labels. These include some premium-type private labels focused on specific food categories.
ALCAMPO	Has a copy-cat private label called Auchan for most product categories. It also offers other minor private labels. These include some premium type private labels focused on specific food categories.
DIA	Dia is its main private label and has a positioning with a strong focus on price. Other private labels focus on specific categories and, in many cases, include the name of the store.
HIPERCOR	Hipercor is its private label and has a positioning with a strong focus on quality.
CAPRABO	Use a three-tier private label strategy in the food category: Alcosto (generic), Caprabo (copy-cat), and Caprabo Big Selection (premium). In the household and personal care categories only use the label Caprabo.
LIDL	Uses a multi-private labels strategy with different labels for each specific category. Private labels adopt a positioning with a strong focus on price.
DINOSOL	Has a less developed private-label strategy. Supersol is its main private label, offered across most categories.
CONSUM	Has a scarcely developed private-label strategy. Consum is its private label across most product categories. It takes a copy-cat positioning.

Table 2
Descriptive Analyses

	MERCADONA (CUSTOMERS: 1808)		CARREFOUR (CUSTOMERS: 1542)		EROSKI (CUSTOMERS: 1285)		ALCAMPO (CUSTOMERS: 944)		DIA (CUSTOMERS: 1724)		HIPERCOR (CUSTOMERS: 424)		CAPRABO (CUSTOMERS: 472)		LIDL (CUSTOMERS: 1218)		DINOSOL (CUSTOMERS: 193)		CONSUM (CUSTOMERS: 305)	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
PURCHASE BEHAVIOR																				
Number of patronized stores (only top ten retailers)	4.21	1.52	4.49	1.42	4.34	1.56	4.70	1.44	4.29	1.47	5.16	1.49	4.66	1.56	4.68	1.35	5.17	1.51	4.64	1.54
Store loyalty	0.19	0.21	0.12	0.16	0.13	0.20	0.10	0.14	0.11	0.12	0.03	0.06	0.08	0.14	0.05	0.07	0.04	0.08	0.08	0.14
SB share (across competing stores)-SB propensity	0.15	0.11	0.17	0.11	0.14	0.11	0.14	0.11	0.14	0.09	0.12	0.11	0.13	0.12	0.17	0.09	0.15	0.12	0.14	0.12
SB share (in-store)	0.37	0.20	0.26	0.23	0.32	0.28	0.19	0.23	0.52	0.25	0.26	0.33	0.15	0.22	0.72	0.24	0.26	0.35	0.15	0.20
SB share on food (in-store)	0.34	0.20	0.25	0.23	0.32	0.28	0.18	0.23	0.51	0.25	0.26	0.33	0.14	0.22	0.71	0.25	0.25	0.35	0.14	0.19
SB share on household products (in-store)	0.76	0.24	0.40	0.35	0.44	0.37	0.36	0.37	0.67	0.31	0.12	0.27	0.21	0.28	0.88	0.24	0.43	0.40	0.30	0.34
SB share on personal care (in- store)	0.80	0.30	0.37	0.40	0.55	0.42	0.29	0.38	0.72	0.38	0.12	0.29	0.22	0.36	0.89	0.27	0.40	0.42	0.45	0.43
SOCIODEMOGRAPHICS																				
Social Class 1 (low)	0.18	0.38	0.14	0.35	0.18	0.38	0.16	0.37	0.21	0.41	0.12	0.33	0.18	0.38	0.17	0.37	0.16	0.36	0.18	0.38
Social Class 2 (medium-low)	0.25	0.43	0.25	0.43	0.26	0.43	0.23	0.42	0.27	0.44	0.19	0.39	0.22	0.41	0.26	0.43	0.27	0.45	0.30	0.46
Social Class 3 (medium)	0.35	0.47	0.37	0.48	0.37	0.48	0.39	0.48	0.33	0.47	0.37	0.48	0.33	0.47	0.35	0.47	0.35	0.48	0.34	0.47
Social Class 4 (high- medium/high)	0.20	0.40	0.22	0.41	0.18	0.38	0.20	0.40	0.17	0.37	0.29	0.45	0.26	0.44	0.20	0.40	0.20	0.40	0.16	0.37
Household's size	3.06	1.17	3.12	1.16	3.05	1.17	3.05	1.17	3.08	1.19	3.08	1.21	2.93	1.14	3.06	1.21	3.27	1.33	3.02	1.22
Children in the household	0.38	0.48	0.41	0.49	0.39	0.48	0.40	0.49	0.38	0.48	0.37	0.48	0.37	0.48	0.38	0.48	0.40	0.49	0.36	0.48
PRICE LEVELS																				
	Normal	Cheap	Normal	Cheap	Normal	Cheap	Normal	Cheap	Normal	Cheap	Normal	Cheap	Normal	Cheap	Normal	Cheap	Normal	Cheap	Normal	Cheap
Price Levels by Basket	110	118	110	104	111	106	107	106	109	105	120	147	115	113	n.a	102	113	125	115	117

Notes: Descriptive statistics have been computed for the sample of customers of each retailer; SB = store brand.; n.a. = Not available

Table 3
Relationship Between Store Loyalty and Store Brand Share

	MERCADONA	CARREFOUR	EROSKI	ALCAMPO	DIA	HIPERCOR	CAPRABO	LIDL	DINOSOL	CONSUM
Constant	-2.20***	-1.81****	-2.03***	-1.59***	-2.76***	-2.39***	-2.12***	-3.51***	-3.90***	-2.30***
Social Class 1	-0.25***	-0.59***	-0.07	-0.24	-0.02	-0.83**	-0.67***	-0.23	0.62	0.41
Social Class 2	-0.19**	-0.45***	0.01	-0.14	0.02	-0.56	-0.02	-0.21	0.85*	-0.12
Social Class 3	0.01	-0.21***	-0.04	-0.12	0.06	-0.34	-0.09	-0.11	1.02**	-0.41
Household's size	-0.05*	-0.08**	-0.17***	-0.11***	-0.05*	-0.19*	-0.23***	-0.15***	-0.01	-0.05
Children in the household	0.30***	0.25***	0.27***	0.14	0.31***	0.09	0.16	0.21	-0.26	0.10
SB propensity	0.35	0.73**	0.82**	0.25	-0.006	1.81*	1.71***	1.72***	3.04***	0.13
SB share (β)	9.10***	8.06***	8.99***	7.83***	6.25***	8.06***	13.29***	7.19***	18.38***	19.65***
SB share ² (γ)	-12.80***	-12.99***	-12.52***	-17.00***	-6.02***	-16.44***	-31.96***	-6.31***	-73.45*	-51.72***
Goodness of fit (Likelihood ratio test)***										
Comparison with monotonic restricted version (Likelihood ratio test)***										
Comparison with the undifferentiated-across-retailers restricted version (Likelihood ratio test)***										

Notes: SB = store brand.

* $p < .10$; ** $p < .05$; *** $p < .01$.

Table 4
Relationship Between Store Loyalty and Store Brand Share in Food, Household, and Personal Care Product Categories

	MERCADONA	CARREFOUR	EROSKI	ALCAMPO	DIA	HIPERCOR	CAPRABO	LIDL	DINOSOL	CONSUM
Constant	-2.66***	-1.95***	-2.07***	-1.58***	-2.86***	-2.53***	-2.02***	-3.47***	-3.53***	-2.53***
Social Class 1	-0.17*	-0.53***	-0.06	-0.25*	-0.05	-0.82*	-0.64**	-0.33*	0.35	0.02
Social Class 2	-0.15*	-0.38***	-0.09	-0.29**	-0.05	-0.30	-0.10	-0.28*	0.54	-0.08
Social Class 3	-0.01	-0.16**	-0.14	-0.18	0.04	-0.16	-0.03	-0.16	0.82	-0.14
Household's size	-0.05**	-0.11***	-0.20***	-0.16***	-0.11***	-0.24**	-0.34***	-0.20***	-0.10	-0.08
Children in the household	0.15**	0.18**	0.16*	0.04	0.30***	0.21	0.35*	0.23*	-0.39	0.06
SB propensity	1.26***	1.13***	1.40***	1.08***	1.21***	1.86**	2.41***	2.60***	2.13*	0.89
SB share (β)	4.46***	4.52***	4.95***	4.33***	4.17***	7.38***	6.19***	3.92***	7.10***	5.45***
SB share ² (γ)	-3.69***	-4.50***	-4.72***	-4.31***	-3.65***	-7.74***	-7.05***	-3.41***	-5.85***	-6.87***
SB share (food – household difference) (δ_F)	-1.02***	-0.49*	-0.27	-1.98***	-1.44**	-3.37**	-1.75*	0.56	-2.54	6.23*
SB share ² (food – household difference) (ε_F)	-2.00***	-2.62***	-2.30***	-2.32***	0.86	-0.55	-4.46***	-0.81**	-10.44***	-23.31***
SB share (personal care – household difference) (δ_P)	-0.85*	-0.46	-0.94*	-0.73	-1.22**	-3.27**	-1.76	-0.98**	-5.58**	-0.21
SB share ² (personal care – household difference) (ε_P)	0.51	0.73	0.98**	0.92**	1.15**	4.44***	3.00**	1.07**	4.87**	1.43

Goodness of fit (Likelihood ratio test)***

Comparison with the undifferentiated-across-food and household categories restricted version (Likelihood ratio test)***
Comparison with the undifferentiated-across-personal care and household categories restricted version (Likelihood ratio test)**

Notes: SB = store brand.

* $p < .10$; ** $p < .05$; *** $p < .01$.

Table A1.
Perceived Risk Measurement Items

Dimension	Probability (1 = not very likely, 7 = very likely)	Importance (1 = not important, 7 = very important)
Performance	How likely is it that the purchase of a brand or other in [category] would lead to a <i>performance loss</i> for me because the product would not meet my quality standards?	As far as I'm concerned, if this performance loss happened to me, it would be...
Financial	How likely is it that the purchase of a brand or other in [category] would lead to <i>financial loss</i> for me?	As far as I'm concerned, if this financial loss happened to me, it would be...
Social	How likely is it that the purchase of a brand or other in [category] would lead to a <i>social loss</i> for me because my family/friends or my social context would think less highly of me?	As far as I'm concerned, if this social loss happened to me, it would be...
Physical	How likely is it that the purchase of a brand or other in [category] would lead to a <i>physical loss</i> for me because it may be harmful to my or my family's health?	As far as I'm concerned, if this physical loss happened to me, it would be...
Psychological	How likely is it that the purchase of a brand or other in [category] would lead to a <i>psychological loss</i> for me because it would not fit in well with my self-image or self-concept?	As far as I'm concerned, if this psychological loss happened to me, it would be...
Time	How likely is it that the purchase of a brand or other in [category] would lead to a <i>time loss</i> for me because it would need to be repaired, returned, or changed?	As far as I'm concerned, if this social loss happened to me, it would be...

Table A2
Comparison of Perceived Risk across Food, Household, and Personal Care Product Categories

	Mean			Unpaired t-Test		
	Food	Household	Personal Care	Difference between personal care and food	Difference between household and food	Difference between personal care and household
Total risk	111.03	120.34	132.25	***	*	*
Performance risk	22.39	26.27	29.62	***	***	**
Financial risk	26.75	25.89	27.60	ns	ns	ns
Social risk	8.47	9.90	11.95	***	ns	ns
Physical risk	20.90	26.01	26.18	***	***	ns
Psychological risk	14.10	13.95	18.71	***	ns	***
Time risk	18.39	18.29	18.16	ns	ns	ns

Notes: ns = not significant.

* $p < .10$. ; ** $p < .05$.; *** $p < .01$.

Figure 1.

Relationship Between Store Loyalty and Store Brand Share

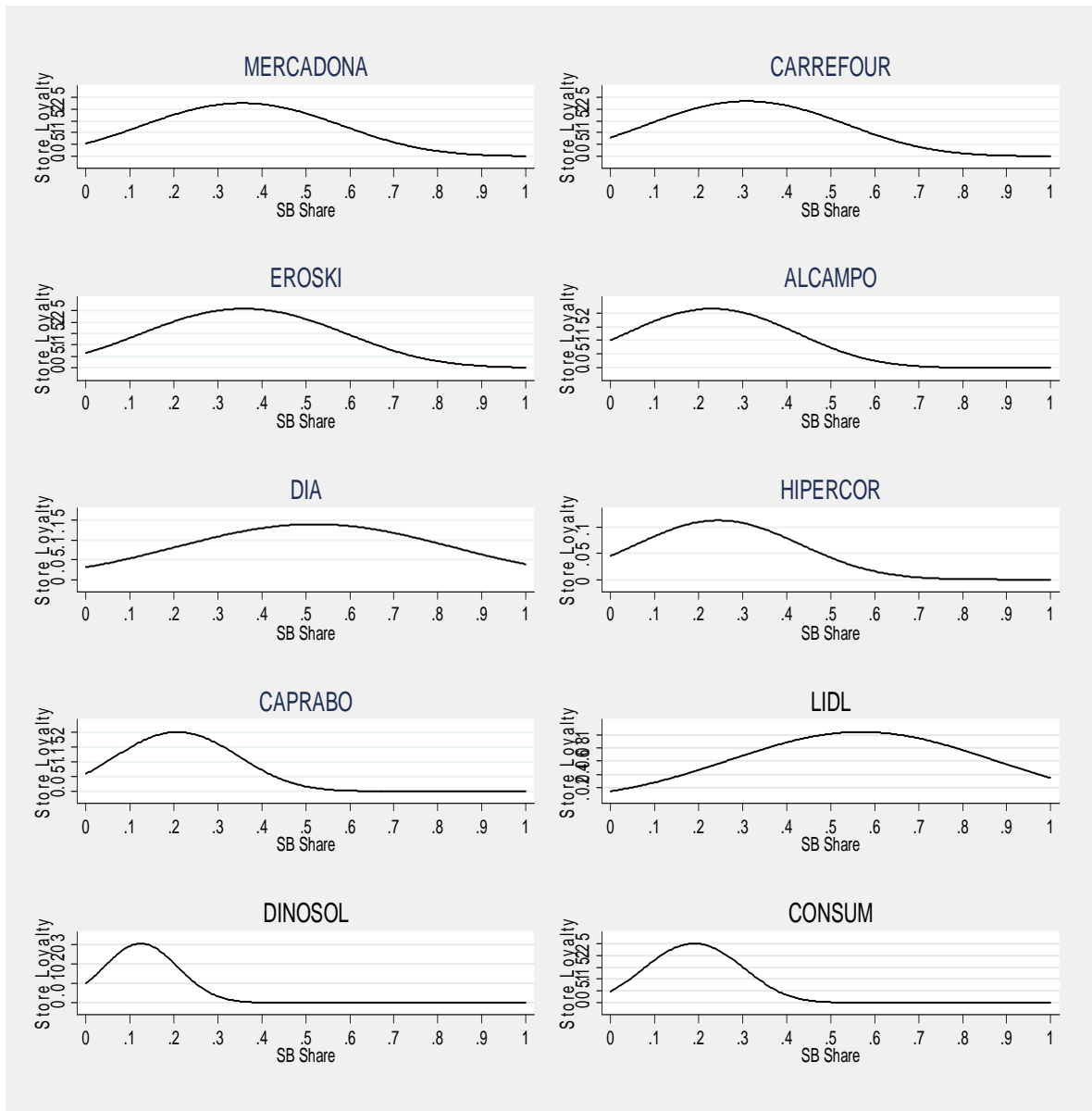
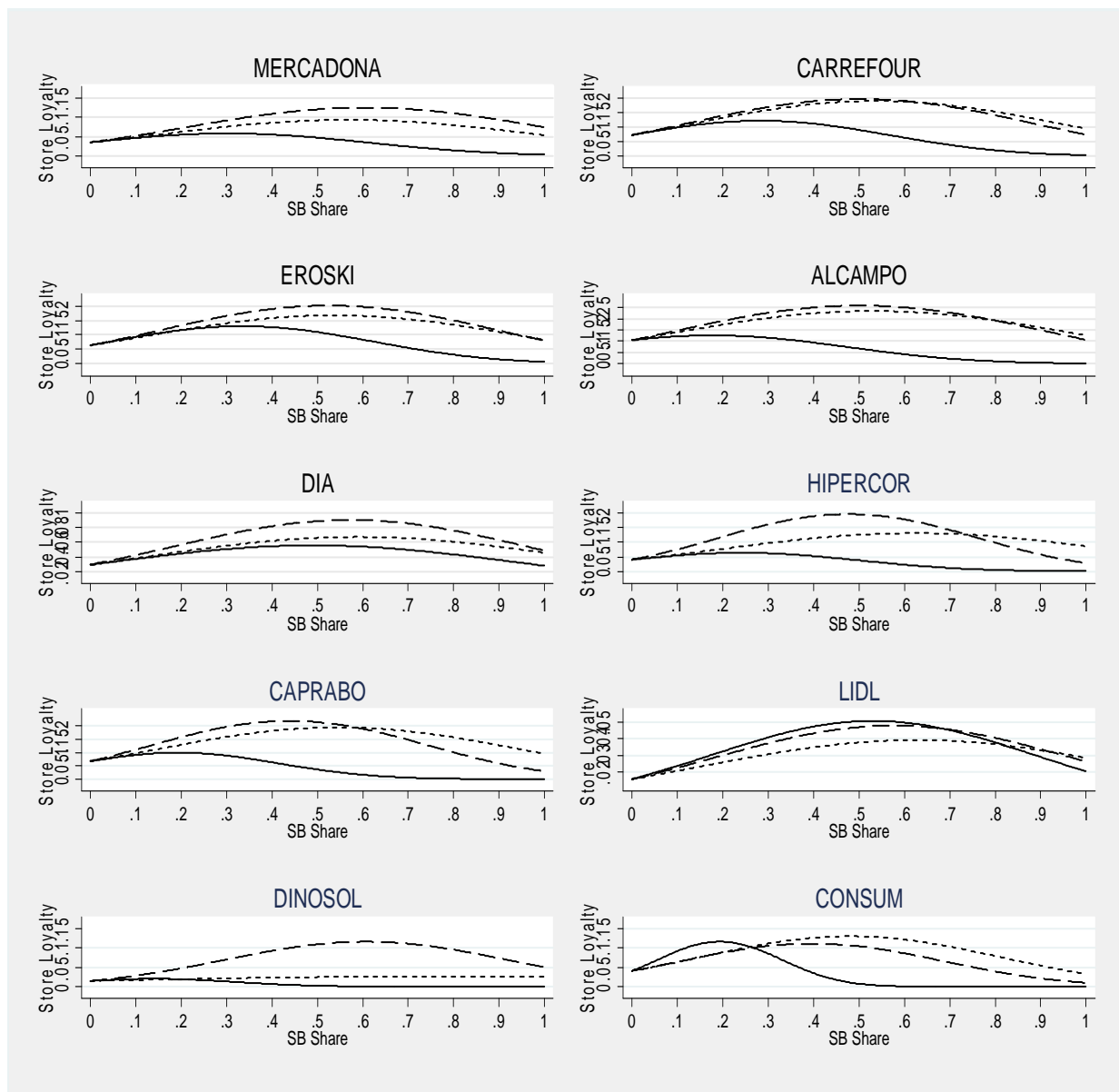


Figure 2.
 Relationship Between Store Loyalty and Store Brand Share in Food, Household, and Personal Care
 Product Categories



Notes: _____ Food products; - - - Household products; Personal Care products