# How Assortment Composition Affects Consumers' Intentions to Buy PL

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Abstract Recent professional publications show that national brand (NB) delistings are not uncommon in food retailing. However, retailers' boycotts of individual brands might have negative consequences. This paper analyses how offering an 'only-Private label (PL)' or 'PL and NB' assortment influences consumers' intentions to buy PL. Our research is based on a controlled online experiment with a large existing consumer panel in the American market owned by IRI Worldwide. Our results suggest that both the number of NBs and the proportion of high-equity NBs contained in a given assortment are aspects of interest for retailers to take into account when designing their product offer.

Keywords Assortment • Private label • National brands

## 1 Introduction

Private labels (PLs) in the consumer packaged goods (CPG) industry have experienced an intense worldwide surge in availability and market share in recent years (Ailawadi, Pauwels, & Steenkamp, 2008), emerging as fierce competitors of national brands (Lamey, Deleersnyder, Steenkamp, & Dekimpe, 2012). To be specific, PL has increased its share across Europe with a value share of 35.6 % and a unit share of 45.1 %. Value shares vary from 16.8 % in Italy to 50.5 % in the

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UK (IRI, 2012a). In the US, PLs have outperformed national brands in 11 of the last 12 years in terms of sales growth (Lamey and colleagues, 2012). Currently, PLs account for 17.1 % of total CPG consumption (14.4 % value share) (IRI, 2012b).

As the above figures indicate, the number of national brands has been reduced in favour of PLs (Olbrich & Grewe, 2013). In this regard, PLs have gained market share over national brands, and there appears to be no end in sight (Lamey et al., 2012:1). Why do retailers want to expand their PLs? Ailawadi and colleagues (2008) indicate three main reasons: (1) higher retail margins on PL; (2) negotiating leverage with national brands, and (3) higher consumer store loyalty. On top of these incentives, retailers have found an "ally" in the current global economic crisis. According to IRI (2012b), nearly half (47 %) of consumers buy more PL today than they did before the economic downturn began.

The global economic slump has additionally accelerated the underlying longterm shift in power from manufacturers to retailers (Berg & Oueck, 2010). Retailers' control over brand assortment and positioning on the shelves enables them to delist a manufacturer brand if their demands are not matched (Bloom & Perry, 2001). There are many examples in recent practitioner publications indicating that manufacturer brand delistings are not uncommon in the CPG industry (Sloot & Verhoef, 2008). Walmart cut big brand names Hefty and Glad from its food storage shelves in favour of its own Great Value brand. The two big brands only managed to get their shelf space back when Hefty increased its advertising more than sevenfold and agreed to produce Walmart's own private label brand (Kelemen, 2012:2). Likewise, Glad increased its advertising spending by 58 % in 2009 (Consumer Goods Technology, 2010). The former Dutch food retail chain Edah decided to delete 2,000 manufacturer brand items prior to introducing 1,000 store brand items. In December 2008, the Spanish retailer Mercadona (in terms of retail space, the largest food retailer operating in Spain) delisted almost 800 items from several manufacturers, including Nestlé and Sara Lee, together with other important Spanish high-equity brands such as Calvo, Pascual and Vileda.

Boycotts of individual brands in retailing may have negative consequences, such as lower customer satisfaction or increased store switching behaviour. Indeed, many of the abovementioned retailers were forced to reintroduce these national brands (accepting the conditions of the manufacturer) in order to prevent consumer boycotts and further damage to their image (Sloot & Verhoef, 2011). Such was the case of the Dutch chain *Edah* and the Spanish retailer *Mercadona*.

This does not bode well for PLs. Why might assortments containing no manufacturer brands be expected to have negative consequences? One important argument which has been put forward in the literature is that a "complete" assortment is one that carries most available brands and in which all well-known brands are available (Sloot & Verhoef, 2008). Consequently, consumers will view an assortment in which all manufacturer brands have been delisted as incomplete. Thus, it would be reasonable to suggest that delisting national brands could harm the image and store sales of a retailer.

This paper aims to shed light on these issues by analysing the potential negative consequences of a retailer's decision to delist all NBs, offering an assortment based only on its own PL, or a significant number of NBs. In particular, we consider the

consequences on intentions to buy PL. Our empirical analysis focuses on an experiment conducted in the US. In this country, PL accounts for 14.4 % of CPG dollar sales and 17.1 % of its units (IRI, 2012b). Although PL share of CPG dollar sales increased slightly during 2012, unit sales slipped (-0.2 %) for the second consecutive year. PL sales remain quite concentrated, and even the heaviest buyers of PL allocate only one out of every four CPG dollars to PL solutions.

#### 2 Research Framework

From the consumer's perspective, assortment plays a key role in store choice (Briesch, Chintagunta, & Fox, 2009) and retail patronage (Pan & Zinkhan, 2006). In this context, customers expect retailers to offer the right mix of items. However, what constitutes the "right mix of products" remains unclear for most retailers (Bauer, Kotouc, & Rudolph, 2012). From the retailer's perspective, there are obvious benefits in emphasising its own brand (Altintas, Kiliç, Senol, & Isin, 2010): (1) control is gained over shelf space; (2) negotiating power over manufacturers is strengthened, and (3) the number of NBs on the shelves is reduced, thereby releasing shelf space to sell the retailer's PL.

Nevertheless, from a consumer's perspective, a "complete" assortment might be one that carries most available brands (number of brands) and in which all wellknown, high-equity brands are available (Sloot & Verhoef, 2008). Oppewal and Koelemeijer (2005) support this idea when suggesting that a manufacturer brand's presence may enhance consumers' overall perception of both assortment appeal and the variety offered by the store. According to this view, retailers cannot push PLs too much at the expense of NBs, since the latter continue to be major traffic builders, and therefore reducing their presence might make the store less attractive to its most profitable shoppers (Ailawadi & Harlam, 2004). In general, NB rivals are (still) perceived as being more similar to one another than to PLs (Geyskens, Gielens, & Gijsbrechts, 2010). This leads consumers to a higher willingness to pay for NBs (Steenkamp, van Heerde, & Geyskens, 2010). Furthermore, consumers are still reluctant to choose PLs for reasons associated with social acceptance (Zielke & Dobbelstein, 2007). Therefore, most retailers need branded goods to differentiate themselves from competitors (Ailawadi et al., 2008). However, although delisting NBs can benefit a retailer's operational costs by reducing SKUs, inventory costs and out-of-stock situations (Wiebach & Hildebrandt, 2012), customers could also move to competing stores when they feel that a retailer is favouring its own brands over the NBs more than other retailers do. Recently, Walmart experimented with a reduced assortment structure, with only one top national brand and their own PL brand in a specific category, but their customers backlashed against it (Dass & Kumar, 2012). Their store-level sales in the category dropped by 40 %, forcing the retailer to revert back to its original assortment composition policy (CNN, 2010).

Given these arguments, negative consequences are expected for those retailers delisting all national brands in a given assortment and offering, thereby opting for an 'only-PL' assortment. Delisting national brands and the impact this has on consumer reactions has been examined by Sloot and Verhoef (2008) and Wiebach and Hildebrandt (2012). Sloot and Verhoef (2008) analyse the behavioural consequences (in terms of store switching intention and brand switching intention) of a (primary) brand delisting in 16 different stores and 10 product categories. Their results show that many consumers are brand loyal, but only a small proportion will cancel their purchase if their preferred brands become unavailable. Additionally, they found empirical support for the negative impact of delisting high market share brands on category sales and store choice. Wiebach and Hildebrandt (2012) further developed four separate studies, in which they used a context theory to test the effects of delisting on the shifts in brand choice shares. Their results provided evidence that context effects emerge in situations when brand items are removed. Thus, Wiebach and Hildebrandt (2012) revealed that removing "dominated", "similar" or "extreme" alternatives from the shelf affects the choice shares of the remaining brands in a theory-based predictable way. The so-called "similarity effect" supports the fact that introducing a higher number of high-equity, premium quality NBs decreases the utility of similar products, namely, other similar NBs (Geyskens et al., 2010).

# **3** Data and Variable Operationalisation

Figure 1 shows the framework that guides our research. 1,400 individuals belonging to a large existing consumer panel in the US owned by *IRI Worldwide*<sup>1</sup> participated in a controlled online experiment. These individuals (73 % female, 27 % male) ranged in age from 24 to 79 (average of 52.9). In the experiment, we manipulated two aspects of assortment variety, namely assortment size and assortment composition. With regard to the former, all participants were provided with one of three different assortment sizes (One brand: only PL; four brands; and ten brands).

Regarding assortment composition, assortment conditions included only PL this is the case of assortments that only contain one brand—and PL and manufacturer brands. Additionally, in the latter condition, assortment varied according to the equity of the PL (high-equity PL vs. low-equity PL) and the proportion of highand low-equity national brands (one-third or two-thirds high-equity national brands). Therefore, the ten assortments were the following:

- 1. (1 brand) High-equity private label (PL)
- 2. (1 brand) Low-equity PL
- 3. (4 brands) High-equity PL + 3 National brands (NBs) (one-third high equity)

<sup>&</sup>lt;sup>1</sup> More details about the composition of the panel are available from the corresponding author upon request.

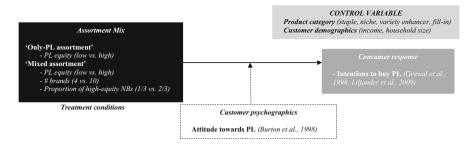


Fig. 1 Research framework

- 4. (4 brands) High-equity PL + 3 NBs (two-thirds high equity)
- 5. (4 brands) Low-equity PL + 3 NBs (one-third high equity)
- 6. (4 brands) Low-equity PL + 3 NBs (two-thirds high equity)
- 7. (10 brands) High-equity PL + 9 NBs (one-third high equity)
- 8. (10 brands) High-equity PL+9 NBs (two-thirds high equity)
- 9. (10 brands) Low-equity PL+9 NBs (one-third high equity)
- 10. (10 brands) Low-equity PL+9 NBs (two-thirds high equity)

Participants were randomly assigned to the conditions. The final number of participants per assortment type was 35 subjects. Given that the experiment was conducted in four product categories, the total number of participants per assortment condition was 140. The experiment was conducted in four product categories: (1) yoghurt; (2) fresh bread & rolls; (3) laundry detergent, and (4) toilet tissue. These categories are characterised using the penetration-frequency distinction developed by Dhar, Hoch, and Kumar (2001). These authors classified categories into "high" and "low" penetration (percentage of households that purchase the category) and frequency (average number of times per year category is purchased) (Dhar and colleagues, 2001:170). According to both aspects, categories fall into one of four groups: (1) staples (high penetration/high frequency); (2) niches (low penetration/high frequency; (3) variety enhancers (high penetration/low frequency); and (4) *fill-ins* (low penetration/low frequency). The selection of product categories (and their inclusion in each of the four groups defined by Dhar and colleagues) was made from a sample of 53 categories that account for more than 60 % of FMCG sales in the US market. Using data on rotation and sales volume, we ranked all 53 categories according to their levels of penetration and frequency. From this ranking we selected the following four product categories: yoghurt (staples); fresh bread & rolls (niches); toilet tissue (variety enhancers), and laundry *detergent* (fill-ins). With the selection of these categories, we ensured that there were two food categories (the most important category in Americans' shopping baskets), but also personal care and cleaning product categories. Within each condition, the brands (both PL and MB) presented were classified (high equity vs. low equity) and selected according to their market share in the US and the rating

| Assortment composition |                                             | IBPL (1–7 scale) |                 |  |
|------------------------|---------------------------------------------|------------------|-----------------|--|
| 'Only-PL'              | High-equity PL                              | 3.95 (2.052)     | 3.875 (2.0804)  |  |
|                        | Low-equity PL                               | 3.8 (2.113)      |                 |  |
| 4 brands               | High-equity PL & one-third high-equity NBs  | 3.819 (2.1227)   | 3.6417 (1.9834) |  |
|                        | High-equity PL & two-thirds high-equity NBs | 3.4738 (1.8604)  |                 |  |
|                        | Low-equity PL & one-third high-equity NBs   | 3.7762 (2.1148)  |                 |  |
|                        | Low-equity PL & two-thirds high-equity NBs  | 3.4976 (1.8114)  |                 |  |
| 10 brands              | High-equity PL & one-third high-equity NBs  | 3.0738 (2.1951)  | 3.2244 (2.0035) |  |
|                        | High-equity PL & two-thirds high-equity NBs | 3.3262 (2.026)   |                 |  |
|                        | Low-equity PL & one-third high-equity NBs   | 3.1786 (1.852)   |                 |  |
|                        | Low-equity PL & two-thirds high-equity NBs  | 3.319 (1.9353)   |                 |  |
| F-value (significance) |                                             | 3.129 (0.001)    | 11.435 (0.000)  |  |

 Table 1
 Mean (std. deviation) of IBPL (average) per assortment type (pooled data)

given by the owners of the consumer panel to each brand.<sup>2</sup> After viewing an online presentation of the assortment<sup>3</sup> respondents filled out a questionnaire that assessed several aspects.

#### 3.1 Dependent Variable: Intentions to Buy the PL

For the purpose of this study, the dependent variable is the consumer's intention to buy the PL (*IBPL*). We used a three-item, seven-point scale adapted from Grewal, Krishnan, Baker, and Borin (1998), and Liljander, Polsa, and van Riel (2009). The average IBPL scores are shown in Table 1.

Our results show that the larger the number of brands (1, 4 or 10 brands) in a given assortment, the lower the IBPL (F = 11.435, p < 0.000), as shown in Fig. 2.

#### 3.2 Moderating and Control Variables

Attitude towards the PL (APL) is included as a moderating variable. It was measured adapting the scale originally proposed by Burton, Lichtenstein, Netemeyer, and Garretson (1998). A positive relationship between the consumer's attitude towards store brands and his/her intention to buy such a brand is anticipated. In addition, product category is included as a control variable. Given that there are four categories, three *dummy* variables also had to be included in the equation. Laundry detergent was selected as the reference, because it is the 'fill-in' category (low penetration/low frequency). Finally, two demographic variables were

<sup>&</sup>lt;sup>2</sup> They rate brands by indicating the perceived consumer preference.

<sup>&</sup>lt;sup>3</sup> Details about assortments are available from the corresponding author upon request.

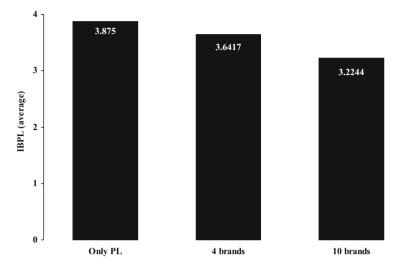


Fig. 2 Average IBPL for 'only-PL', four and ten brands assortments

considered as control variables: income and household size. These variables have traditionally been found to be very relevant when explaining consumers' PL purchasing behaviour (Ailawadi, Neslin, & Gedenk, 2001).

#### 3.3 Treatment Conditions

As indicated above, there were three different assortment sizes (1 brand, 4 brands and 10 brands). Thus, we may differentiate between two groups of assortments: (a) only-PL assortment, and (b) PL and NB assortment. While in the former there is only one attribute (PL's equity) of two levels (high-equity and low-equity), in those assortments including a mix of PLs and NBs, there are three attributes (PL's equity, # of brands, and proportion of high-equity NBs) of two levels each. Attributes and their levels are shown in Table 2.

For the 'only-PL' assortments, there is one attribute of two levels; therefore, only two scenarios are defined. For the 'mixed assortments', with three factors of two levels each, the number of possible scenarios is  $2^3 = 8$ . In this case, we also included two-factor interactions and the three-factor interaction. The design matrix is shown in Table 3.

Prior to estimating the model, in view of the correlation between the independent variables, we checked a possible multicollinearity in our data to avoid undesired effects. We also computed the variance inflation factors and found that all are less than 3.148, which is clearly below the recommended level of 6. Therefore, multicollinearity may not affect our estimation results (Hair, Anderson, Tatham, & Black, 1998). Table 4 shows the results of the regression models for both 'only-PL' and 'PL and NB' assortments.

| Table 2 Conjoint autotics and conceptioning levels                               |                                         |  |  |
|----------------------------------------------------------------------------------|-----------------------------------------|--|--|
| Attribute                                                                        | Levels                                  |  |  |
| # Brands <sup>a</sup> (C)                                                        | +1 Ten brands $-1$ Four brands          |  |  |
| PL's equity (D)                                                                  | +1 High-equity -1 Low-equity            |  |  |
| Proportion of high-equity NBs <sup>a</sup> (N) +1 Two-thirds of the total number |                                         |  |  |
|                                                                                  | -1 One-third of the total number of NBs |  |  |

Table 2 Conjoint attributes and corresponding levels

<sup>a</sup>Only for those assortments comprising both PL and NBs

| Scenario | # brands (C) | PL equity (D) | Proportion of high-equity NBs (N) | CD | CN | DN | CDN |
|----------|--------------|---------------|-----------------------------------|----|----|----|-----|
| (1)      |              | -1            |                                   |    |    |    |     |
| (2)      |              | +1            |                                   |    |    |    |     |
| (3)      | +1           | -1            | -1                                | -1 | +1 | -1 | +1  |
| (4)      | +1           | -1            | +1                                | -1 | -1 | +1 | -1  |
| (5)      | -1           | -1            | -1                                | +1 | +1 | +1 | -1  |
| (6)      | -1           | -1            | +1                                | +1 | -1 | -1 | +1  |
| (7)      | +1           | +1            | -1                                | +1 | -1 | -1 | -1  |
| (8)      | +1           | +1            | +1                                | +1 | +1 | +1 | +1  |
| (9)      | -1           | +1            | -1                                | -1 | -1 | +1 | +1  |
| (10)     | -1           | +1            | +1                                | -1 | +1 | -1 | -1  |

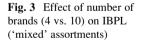
Table 3 Design matrix

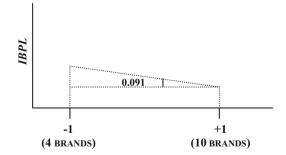
As shown in Table 4, consumers are more likely to buy PL, as their attitude towards this type of brand is more positive. This relationship is stronger for 'only-PL' assortments than for 'mixed' assortments (0.564 vs. 0.495). With regard to 'only-PL' assortments, it is worth highlighting that the PL's equity does not have any direct or moderating influence on IBPL. Thus, the influence of 'only PL' assortments on IBPL does not depend on the brand equity of the PL. In addition, the higher the number of household members, the stronger the IBPL (0.189; p = 0.027). Household size also shows a significant and positive relationship with IBPL for 'mixed' assortments (0.091; p = 0.039). With respect to those assortments containing both PLs and NBs, we observed that the number of brands has a significant (negative) influence on IBPL (-0.091, p = 0.000). This can be seen in Fig. 3. For those assortments containing ten brands (PL and nine NBs), the consumer's IBPL is 9.1 % lower than for those assortments with four brands (PL and three NBs).

Additionally, the number of brands has an indirect influence on IBPL through the interaction between this factor and the proportion of high-equity NBs (0.052; p = 0.039). Following the same argument represented in Fig. 3, the interpretation is that for those assortments containing four brands (with at least one-third highequity NBs) or those with ten brands (with at least two-thirds high-equity NBs), the consumer's intention to buy PL is lower (5.2 %). Finally, our results suggest that the higher the income level, the lower the IBPL. This is in accordance with previous literature relating PLs to economic restrictions (see, for example, Ailawadi and

| Table 4         Estimation results | 'Only-PL' assortment              | Std. beta   | <i>p</i> -Value <sup>a</sup> |
|------------------------------------|-----------------------------------|-------------|------------------------------|
|                                    | PL's equity (D)                   | 0.021       | 0.253                        |
|                                    | Attitude towards PL (APL)         | 0.564       | 0.000                        |
|                                    | $D \times APL$                    | 0.012       | 0.253                        |
|                                    | Income level                      | -0.048      | 0.575                        |
|                                    | Household size                    | 0.189       | 0.027                        |
|                                    | Yoghurt                           | 0.001       | 0.984                        |
|                                    | Fresh bread                       | 0.083       | 0.160                        |
|                                    | Toilet tissue                     | -0.042      | 0.484                        |
|                                    | F-value (significance)            | 20.238 (0.0 |                              |
|                                    | $R^2$ (adjusted)                  | 0.355       |                              |
|                                    | 'PL and NB' assortment            | Std. beta   | <i>p</i> -Value <sup>a</sup> |
|                                    | # Brands (C)                      | -0.091      | 0.000                        |
|                                    | PL's equity (D)                   | 0.004       | 0.878                        |
|                                    | Proportion of high-equity NBs (N) | -0.009      | 0.707                        |
|                                    | CD                                | 0.021       | 0.408                        |
|                                    | CN                                | 0.052       | 0.039                        |
|                                    | DN                                | 0.001       | 0.971                        |
|                                    | CDN                               | 0.002       | 0.926                        |
|                                    | APL                               | 0.495       | 0.000                        |
|                                    | $C \times APL$                    | -0.014      | 0.577                        |
|                                    | $D \times APL$                    | 0.028       | 0.263                        |
|                                    | $N \times APL$                    | -0.011      | 0.677                        |
|                                    | Income level                      | -0.130      | 0.003                        |
|                                    | Household size                    | 0.091       | 0.039                        |
|                                    | Yoghurt                           | -0.041      | 0.185                        |
|                                    | Fresh bread                       | 0.145       | 0.000                        |
|                                    | Toilet tissue                     | 0.038       | 0.219                        |
|                                    | F-value (significance)            | 30.118 (0.0 | 00)                          |
|                                    | R <sup>2</sup> (adjusted)         | 0.294       |                              |

<sup>a</sup>Significant relations (p < 0.05) appear in bold





colleagues, 2001). As for product categories, our results suggest that IBPL for fresh bread (niche) is higher (14.5 %) than for laundry detergent.

#### 4 Conclusions

Our results confirm that attitude towards store brands is of relevance when seeking to explain consumers' intentions to buy PL, particularly in the case of assortments that only contain PL. Our results also suggest that those assortments containing a higher number of NBs (9 vs. 3) show a lower IBPL. Nevertheless, this influence will also depend on the proportion of high-equity NBs contained in the proposed assortment. Thus, if "smaller" assortments (i.e. four brands) 'only' contain one-third of high-equity NBs, consumers' IBPL will be higher than in the case of "larger" assortments containing the same proportion of high-equity NBs. Therefore, we recommend that retailers bear both aspects in mind—the number of brands and the proportion of high-equity NBs—when designing their assortments. In summary, our results reveal that the higher the number of NBs contained in a given assortment, the lower the IBPL. However, for 'mixed' assortments this relationship will also depend on the proportion of high-equity NBs), retailers do not need to offer assortments with a large number of NBs, particularly when the NBs are high-equity.

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