

**Why Private Labels' Performance
Varies by Country**

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Abstract: Why private labels (PLs) enjoy a large market in some countries while hardly penetrating others? What makes a market favourable to PL-product development? Are there groups of countries that are differentiated by particular specificities in terms of PL presence? This study aims at addressing these relatively less-researched questions in international marketing literature. This paper overcomes this lack and offers insights into international market mechanisms by empirically investigating the factors behind these disparities, using a large, cross-country, time-series dataset and following an encompassing approach including a number of relevant economic, social and cultural determinants. In deriving the model, we assume that countries belong to a finite number of groups and that, in addition to the available variables, exist unobservable moderating factors that account for heterogeneity. By adopting a latent structure formulation, we allow for the creation of latent country segments in order to capture the potential heterogeneity among markets and outline their underlying determinants in terms of PL adoption. Our approach combines market structure, country segmentation and the sensitivity of potential factors in a unique framework.

Key Words: Private Label, International markets, Censored model, Unobserved heterogeneity, Latent structure analysis.

Résumé: La marque privée a révolutionné l'industrie de la grande distribution. Une étude de ACNielsen (2005) a révélé que, dans 36 pays, les dépenses accordées par les ménages aux produits d'épicerie se sont élevées à 17% du total de leurs achats. Malgré leur succès sur la scène internationale, la part de marché de la marque privée varie considérablement à travers les pays, allant de 0.2% en Inde à 40.6% en Suisse (2008). Tandis que cette catégorie de produits de détaillants est en phase de maturité sur certains marchés (France, États-Unis, etc.), elle peine encore à atteindre une position respectable sur d'autres (Pérou, Slovénie, etc.). On peut se demander pourquoi la marque privée performe dans certains pays alors qu'elle peine à décoller dans d'autres. Qu'est-ce qui rend un marché favorable au développement de la marque privée? Existe-t-il des groupements de pays qui se distinguent en termes de présence de la marque privée?

Ce travail vise à répondre à un sujet relativement peu étudié par la littérature dédiée au marketing international, à savoir les facteurs explicatifs de la variation de performance de la marque privée dans un contexte international. Cet article surmonte cette absence et offre une compréhension des mécanismes du marché international en investiguant empiriquement les facteurs induisant à cette disparité géographique. Cela a été rendu possible en utilisant une large base de données inter-pays et en recourant à une approche rigoureuse qui inclue des variables économiques, sociales et culturelles. En dérivant le modèle, nous suspectons l'existence d'un certain nombre de groupes auxquels sont assignés les pays, et outre les variables disponibles, il existe des facteurs non observables désignant l'hétérogénéité. En adoptant une structure latente, nous permettons la création de segments latents de pays pour capturer l'hétérogénéité potentiellement présente à travers les marchés géographiques et souligner les déterminants sous-jacents à l'adoption de la marque privée. Cette approche est pertinente, étant donné qu'elle permet de combiner dans un même cadre la structure de marché, la segmentation des pays et les facteurs potentiels de sensibilité pour l'adoption de la marque privée.

1 Introduction

Private labels (PLs), which are brands controlled and sold exclusively by retailers, are no longer by any means a marginal phenomenon in retailing. The PL industry is approaching US\$1 trillion in annual sales (Collins and Bone 2008) and, as the recession of 2008-09 deepened, the industry experienced spikes in sales and product introductions. Worldwide, the largest markets for private labels are found primarily in Europe and North America. In 2007, private label spending in the United States reached just over US\$94 billion and European Union spending was over US\$365 billion (Bone and Collins, 2008). Based on sales data for 80 categories of consumer packaged goods in 38 countries, ACNielsen (2005) found that consumers spent 15% of the total value of sales on private labels, and that growth rates for PLs outpaced those of manufacturers in nearly two-thirds of the countries studied (26 of 38). These averages hide some large disparities between regions around the globe. Indeed, whereas the PL market share is 23% in Europe, it is 16% in North America (i.e., 30% lower than in Europe), and it barely reaches 4% in some Asian markets. We also observe large differences within regions. To illustrate, the market share of PLs was 3.8% in Greece in 2005 and more than eleven times that in Switzerland (45% to be precise). New Zealand and Australia have a much higher performance level of PLs than Asian Pacific countries (South Korea, Thailand, Singapore...). In terms of the growth rate of PL sales, while the performance was astonishing in the emerging markets of Croatia, the Czech Republic, Hungary, Slovakia and South Africa (11% increase in 2003 compared to 2002), it was large but comparatively modest in Latin America (5%).

The above numbers quite naturally trigger some research questions. Why did PL succeed in consolidating their position and reach maturity in some countries (e.g., Switzerland, Germany and the United States), while they are still struggling to enjoy a respectable position in other markets (e.g., Thailand, Turkey, Mexico)? Why do PLs enjoy a much higher market share in Switzerland and the United Kingdom than in the United States? More generally, what makes a market more favorable than another for PL product development? And lastly, can we identify natural segments within the international markets? These are essentially the questions we wish to answer in this paper. To deal with them, we adopt a latent-class model that allows us to simultaneously group countries into homogeneous segments and explain the performance of private labels within each of them.

Focusing on the variability of private labels' performance between countries, the results uncover that the international market for private label is characterized by two distinct patterns. In developing countries, store brands are a relatively new phenomenon, not yet part and parcel of consumers' shopping baskets or their consumption habits. In these geographical markets, the more concentrated is the retail market, the more the market power of these retailers leads to credible and successful PL programs. In these countries, the PLs offered are generally of mediocre quality and perceived as inferior to the national brands with which they compete; therefore, uncertainty avoidance makes the risk associated to PL purchasing less acceptable to consumers. Social stigma remains a barrier to PL growth. Famous brand-name products signify class and status, and social modernity grows, this leads to a lesser PL demand. In contrast, in developed countries, customers have been over time (since the seventies) exposed to private labels, and thus are accustomed to them and aware of their benefits. The brand has grown up and gained maturity, making the PL offer evolve towards an improved quality of PL products. So in these countries, the market's large size offers potential for branded products, and as consumers place relatively little importance on brand image, society's modernity contributes positively to PL performance. In these "wealthy" geographical markets, income inequality indicates that mid- to lower-income consumers are often the first to be positive towards PL.

The rest of the paper is organized as follows: In Section 2, we review the literature, and in Section 3, we develop our modelling approach. In Section 4, we introduce the variables, data and hypothesis; and we present the results in Section 5. Section 6 concludes with some managerial implications and future suggestions.

2 Literature Review

In this section, we discuss the significant literature on PLs. We start by reporting on studies that have dealt with the success factors of PLs, and then, we shed some light on international market acceptance of new products. Finally, we review those studies that focused on understanding geographical differences in PL acceptance.

2.1 Why Do Retailers Sell PLs and What Are the Success Factors?

Retailers move into PLs for three main reasons. First, they typically yield higher margins than manufacturers' national brands (Hoch and Banerji 1993; Ailawadi and Harlam 2004; Pauwels and Srinivasan 2004). For instance, Brady, Brown, and Hult (2003) demonstrated that grocery discounters of national brands can add 50% to their gross margin per square foot of display space by launching well-supported private-label brands. Second, PLs have the potential to increase store traffic, build store loyalty and thus enhance chain profitability (Dick, Jain, and Richardson 1997; Ailawadi, Pauwels and Steenkamp 2008). Finally, PLs provide the opportunity of capturing untapped segments or stealing value-conscious consumers away from the national brands (Connor and Peterson 1992). Aside from these direct economic benefits to retailers, other studies have seen the private label as a strategic move for retailers to gain bargaining power against manufacturers (Ailawadi and Harlam 2004; Meza and Sudhir 2010). In this case, the PL allows the retailer to negotiate lower wholesale prices and to benefit from better trade deals for the national brands it carries. The argument is simple: if manufacturers do not reduce their transfer prices, they will lose their competitiveness against PLs, especially in categories where manufacturers find it harder to differentiate their brands from PLs. In fact, the source of this bargaining advantage lies precisely in the retailers' ability to develop imitations of leading national brands and to sell them at lower prices (Morton and Zettelmeyer 2004).

Aiming to take advantage of their own brand launch, retailers are aware that all product categories do not offer the same opportunity. Raju, Sethuraman, and Dhar (1995) investigated what makes a product category conducive to store brand introduction. Their findings suggest that store brand introduction is profitable in categories where cross-price sensitivity between national brands is low and cross-price sensitivity between the national brands and the store brand is high. Interestingly, they also conclude that the introduction of a store brand is more likely to lead to an increase in category profits if the category consists of a large number of national brands. According to Connor and Peterson (1992) and Raju and al. (1995), retailers can enhance their profits if the PL is introduced in categories whose base level demand is high, seizing the opportunity offered by the untapped market potential. Those who addressed PL from a bargaining perspective explain that retailers gain bargaining power through lower wholesale prices on imitated national brands. But they find that the gain is greater in niche categories than in mass categories, suggesting that niche national brands with limited "pull" power lose more bargaining power.

Another stream in this literature has investigated the role of factors that possibly facilitate PL success and growth, such as product quality, retail format, retail concentration and socio-demographic characteristics. Although price advantage over national brands is one of the main reasons for consumers to adopt PLs, their (increasing) high quality seems to be a more important determinant of their success (Hoch and Banerji 1993). Dick, Richardson, and Jain (1994) recognize that product quality, assessed by elements such as packaging, labelling and brand image, and the overall image of the store itself are crucial factors in retail brand success.

In terms of retail format, it was found that private-label products are much more prevalent in large grocery stores such as supermarkets than in small outlets.¹ Therefore, the higher the number of large outlets, the greater the performance of PLs. Along the same lines, an increase of the number of chains of hard discounters (e.g., Aldi and Lidl in Europe) that mainly offer PL, also contributes significantly to the growth of PLs. A notable exception to this line of reasoning is South Korea, where the number of hypermarkets grew from 4 to 113 between 1994 and 1999, without any significant impact on PLs' market share (less than 1%).

Concentration in the retailing industry has been identified as a favorable factor for the development and growth of PLs. Of the ten most developed PL countries, nine had retailer concentrations of over 60%

¹See: United States PL food market, forecasts to 2013.

(ACNielsen 2005). Tarzijan (2004) obtains the same result and argues that private-label performance is due to the degree of retailer power over suppliers. Although the positive relationship between retail concentration and PL performance holds in general, some exceptions exist, such as Australia. Indeed, Nenycz-thiel (2011) observed that whereas two retailers, Coles and Woolworths, hold a massive 74% of the Australian grocery market, the PL performance is only 24%, a level that lags behind other countries with much lower retailer concentration.

Lamey et al. (2007) investigated the link between private-label success and the economic situation and confirmed the conventional wisdom that a PL's share increases when the economy is suffering and shrinks when the economy is flourishing. Glynn and Chen (2009) found income, education and household size to be inhibitors of PL-product purchasing. One assumption here is that households with higher incomes are less likely to buy PLs. This finding was confirmed by Hoch (1996) and Ailawadi, Neslin, and Gedenk (2001).

2.2 International Market Acceptance of New products

Diffusion processes result in the acceptance or penetration of a new idea, behavior, or physical innovation over time by a given social system. In a global context, research on the evolution of multi-markets reveals a noteworthy aspect of new products diffusion that deals with heterogeneity among different social systems in which the same product is adopted (Helsen, Jedidi, and DeSarbo 1993; Takada and Jain 1991). The studies concerned a wide range of products notably grocery products, Internet, home appliances, technology innovation. The salient result emerging from all of these papers is that diffusion and growth processes vary greatly among countries, even for the same products or within the same continent. Talukdar, Sudhir, and Ainslie (2002) investigated the impact of a wide range of macroenvironmental variables on the Bass diffusion model across 31 countries for 6 products. Their empirical findings enable to contrast the average penetration potential between developed (0.51) and developing countries (0.17). Several studies (Talukdar et al. 2002; Ganesh 1998; Helsen and al. 1993) have investigated the country-specific sources of these differences and underlined that factors can be divided into cultural sources and socioeconomic sources.

Cultural sources relate to the country's cultural characteristics and values. Takada and Jain (1991) found that the diffusion is higher in countries that are high-context and homophilous (such as Asian Pacific countries) relative to countries such as the U.S. that are low-context and heterophilous. Dwyer, Mesak and Hsu (2005) and Van den Bulte and Stremersch (2004) used Hofstede (2001) dimensions of national culture and found positive relationships between new product diffusion and collectivism, masculinity, and high power distance. In addition, Dwyer and al. (2005) found that short-term orientation was positively associated with diffusion, but they did not observe a significant negative relationship with uncertainty avoidance. Socioeconomic sources relate to the wealth of the country (usually measured by gross domestic product (GDP) per capita, but also by lifestyle, health status, and urbanization) has a positive influence on new products diffusion (Desiraju, Nair, and Chintagunta 2004; Dekimpe, Parker, and Sarvary 2000; Putsis and al. 1997). Dekimpe and al. (2000) found that countries with homogeneous social systems reach full confirmation. For Talukdar and al. (2002), demographic trends (literacy, number of ethnicities, urbanization) were found to be critical in determining the eventual product penetration potential and diffusion in the international markets. Some other variables (Gini index, home appliance penetration and women in labor force) were not. The access to mass media has a positive influence on products diffusion (Tellefsen and Takada 1999; Putsis and al. 1997).

A critical review about Innovation diffusion and new product growth models (Peres, Muller, and Mahajan 2010) mentioned that some efforts have been made to include developing countries in innovation diffusion studies (Dekimpe and al., 2000; Desiraju and al. 2004); however, it remains to be determined whether emerging economies are characterized by the patterns and forces that are at work in developed economies or whether the theories have to be revised (Steenkamp and Burgess 2002).

2.3 Country Variation in PL Performance

Few studies have been conducted on private labels outside the US and Europe, and even fewer have attempted to explain disparities in PL performance across different countries. In a recent literature review, Hyman,

Kopf and Lee (2010) reviewed 60 empirical studies and concluded that nearly 75% of them have used data totally or partially collected in the US. Within Europe, the large differences in the share of PL between countries are attributed to the concentration of the retail trade and to consumer appreciation for strong manufacturer brands (Leeflang and Raaij 1995). Comparing the US to some European markets, ACNielsen (2005) associated the higher market penetration of PLs with the higher concentration of national chains in most West European countries. To illustrate, the top five chains command only 21% of national supermarket sales in the US versus 62% in the United Kingdom. Burt (2000) explains the difference between retail brand development in the UK and the US by the attitudinal and behavioural changes in the use of market power in the distribution channel, the centralization of management activities and the development of the retailer as a brand. Erdem, Zhao and Valenzuela (2004) conducted an empirical study on consumer choice behavior with respect to store brands in the US, UK and Spain. The authors found that consumer uncertainty about quality, consumer learning and perceived risk play an important role in consumers selecting PLs and contribute to differences in the brands' strength across the three countries.

Asian markets have been the focus of some studies. Mandhachitara, Randall and Hadjicharalambous(2007) note that several attempts to launch lines of private labels by hypermarket chains have been documented but very few have been commercially successful on a sustainable basis. Mandhachitara and al. (2007) and Lupton, Rawlinson and Braunstein(2010) investigated some possible explanations for the lack of success of PL grocery brands in Asia. Attitudinal and behavioural factors associated to shoppers' PL acceptance or rejection have been compared for the US and Asia (respectively, Thailand and China). Comparatively to the US, Asian markets face a significant delay in terms of consumerism and modern marketing strategies which has led to different consumer beliefs and perceptions about PLs. The authors concluded that poor market knowledge, a lack of understanding of private-label products and the tendency of Asian consumers to infer product quality through extrinsic cues such as high price were the principal factors in the retail-grocery shopping differences between the Western individualistic and the Eastern collectivistic cultures. The role of culture as a determinant of the success or failure of launched private-label programs has been investigated in few studies.²Herstein and al. (2012) investigated the association between three personality traits (individualism, materialism and the "need for cognition") and shoppers' predisposition to buy private-label brands, across four Mediterranean countries. They concluded that those personality traits, and more generally, culture affect consumers' preference for private versus national brands. The propensity to purchase private brands was negatively associated with materialism and positively associated with the need for cognition. There was no association with individualism. In their research, Lupton and al. (2010) noticed that, collectivist culture (China) and, individualist culture (US) had significant differences when addressing beliefs and perceptions concerning private-label brands. Chinese consumers believe that private-label food products may be of inferior quality compared to manufacturer brands. Additionally, Chinese either do not have an understanding of private-label products, or private-label names are not recognized as such.

Finally, based on advertising expenditures in 37 countries, Deleersnyder and al. (2009) found that private-label growth is higher in countries characterized by more cyclical advertising spending, implying significant losses for brand manufacturers.

As we can see from this overview of the literature, very little is known about what explains the variability of PL performance in international markets. In their literature review, Hyman and al. (2010) invited research effort in this direction when they wrote: "... Studies on inter-country differences in private label brands usage are needed." This study attempts to fill this important gap in the literature.

3 Methodological Framework

In this section, we introduce our modelling approach for the censored dependent variable and the latent-class model.

²Hofstede (1980) defined culture as "the collective programming of mind which distinguishes one national group or category of people from another... (thus)... the interactive aggregate of common characteristics that influence a human group's response to its environment."

3.1 Censored Dependent Variable

The dependent variable in our model is the market share of the private labels for a product category, namely “household products” in our case, in each of the 54 countries in our database. A first decision we must make is how to treat zero values. To illustrate, the PL enjoys a 45% market share in the household products category in Switzerland but no PL is offered in this category in, e.g., Argentina, Vietnam or Croatia. One option is to exclude the 17 countries, where the PL was not introduced, see Table 1, from the study and retain only those countries where PLs have a strictly positive market share. We believe that this approach would not be appropriate. Technically speaking, ignoring null dependent-variable observations leads to a selection bias and thus to inefficient estimates. Conceptually, a zero market share is a piece of information in of itself that is worth analyzing. The starting point here is that a retailer will launch a PL only if he thinks its performance (in terms of profit, sales, etc.) will exceed a certain threshold. This threshold may be assumed to be a known constant or, more generally, it may be treated as an unobservable random variable indicating some unobserved level of information at the retailer’s disposal. When this threshold is not expected to be reached, then the private label is not launched, and a zero market-share value is recorded.

Table 1: Dependent Variable Distribution

| Private label market share | Number of countries | |
|-----------------------------|---------------------|------|
| | 2003 | 2008 |
| PL is not introduced - 0% | 17 | 17 |
| Under 5% | 15 | 15 |
| 5% ≤ PL market share < 10% | 3 | 2 |
| 10% ≤ PL market share < 20% | 7 | 6 |
| 20% ≤ PL market share < 30% | 6 | 7 |
| 30% ≤ PL market share < 40% | 6 | 5 |
| Over 40% | 0 | 2 |
| | 54 | 54 |

Following an established literature in economics and statistics on limited dependent variables (Greene 1983; Maddala 1983), our approach includes the modelling of the portion of zeros characterizing the absence of a PL market share in some countries. The censored regression model (Tobin, 1958) in which the PL market share is censored (at zero, without loss of generality) can be expressed as

$$y_i^* = X_i\alpha + \mu_i, \quad i = 1, \dots, I, \quad (1)$$

where the random variable y_i^* is a partially latent variable whose observed value, y_i , is concentrated at zero when it is nonpositive. Hence,

$$y_i = \begin{cases} y_i & \text{if } y_i^* > 0, \\ 0 & \text{if } y_i^* \leq 0, \end{cases} \quad (2)$$

where y_i is the value of the observed censored dependent variable for country i , $i = 1, \dots, I$. In (1), X is the vector of D explanatory variables ($d = 1, \dots, D$) for country i , and α is the vector of regression coefficients for these explanatory variables. The error terms μ_i are assumed to be iid drawn from a normal distribution. Note that y_i and X_i are known for each country i , but y_i^* is unobserved if it is nonpositive (i.e., $y_i = 0$) and is therefore partially latent. Once the performance of the PL in the category is continuous but observable only on an interval, then y_i is the value of the censored dependent variable for a given product category in country i . Under the normality assumption of the error term μ_i , we have

$$\begin{aligned} Pr[Y_i = y_i] &= Pr\left[\frac{\mu_i}{\sigma} = \frac{Y_i - X_i\beta}{\sigma}\right] = f\left(\frac{Y_i - X_i\beta}{\sigma}\right), \\ Pr[Y_i^* \leq 0] &= Pr\left[\frac{\mu_i}{\sigma} \leq \frac{-X_i\beta}{\sigma}\right] = 1 - \Phi\left(\frac{X_i\beta}{\sigma}\right). \end{aligned}$$

The expected value of

$$y_i = E(y_i) = Pr(y_i^* > 0) \cdot E(y_i | y_i^* > 0),$$

and the conditional expectation is given by

$$E(y_i | y_i^* > 0) = X_i\beta + E(\mu_i | \mu_i > -X_i\beta) = X_i\beta + \sigma \left(\frac{\phi\left(\frac{X_i\beta}{\sigma}\right)}{\Phi\left(\frac{X_i\beta}{\sigma}\right)} \right),$$

where $\phi(\cdot)$ and $\Phi(\cdot)$ are the density and distribution functions, respectively, of a standard normal variable. We recall that OLS regression is inappropriate when a dependent variable is censored, because it would lead to biased and inconsistent estimator, regardless of whether all the observations or only the positive observations are used. Using the normality assumption, the log-likelihood can be expressed as

$$\ln L = \sum_{i:y_i=0} \ln \left\{ 1 - \Phi\left(\frac{X_i\beta}{\sigma}\right) \right\} - \frac{1}{2} \sum_{i:y_i>0} \left\{ \ln 2\pi\sigma^2 + \frac{(y_i - X_i\beta)^2}{\sigma^2} \right\}. \quad (3)$$

3.2 A Latent-Class Model for Inter-Country Heterogeneity

We assume that countries having similar characteristics (e.g., cultural, economic, social, etc.) form small number of segments that differ in the relationship between the PL performance and the explanatory variables. We, then, aim to identify homogeneous segments of countries and estimates different regression equations for each of these segments in order to better assess the potentially different patterns of PL performance in the international market. In order to account for this heterogeneity, we use a latent structure generalization of this censored dependent variable model (Kamakura and Russell 1989; Helsen and al. 1993). This approach assumes that countries belong to a finite number of relatively more homogeneous classes or market segments (k) and that, in addition to the available variables, there exist discrete unobservable moderating factors that account for heterogeneity. This assumption would allow subjects within the same segment to be treated as replicates of one other (e.g., conditional independence) in a latent structure formulation (DeSarbo and Choi 1999; Helsen and al. 1993). Specifically, the proposed model takes into account the countries where the PL is launched (non-censored observations), examines the potential heterogeneity of the effect of the explanatory variables on PL performance and, based on these effects heterogeneity forms segments of subjects³ (countries) that possess similar beta coefficients from multiple regression analysis.

By testing, within a single analysis, differential relationships between PL performance and outcome variables across several latent classes, this methodology entails several advantages that make it preferable to a prior segmentation based (say) on economic, social and cultural variables, followed by multi-group equation modelling to estimate the model for each segment. We believe that this intuitive approach is problematic because in the first step the homogeneity of a single population is assumed, while the second step rests on the heterogeneity of multiple segments. Also, this approach is flawed because available clustering methods do not allow for performing a response-based segmentation on the basis of a hypothesized model structure (Jedidi, Harsharanjeet, and Wayne 1997). In our approach, however, country segments are derived without imposing any a priori segmentation scheme. Moreover, country segments and parameter estimates are determined simultaneously. In summary, countries classified in the same latent class tend to be similar to one another in terms of the associations between PL market share and outcome variables. Thus, the proposed model provides the effect of the variables by class, and assigns each country to a given cluster, all simultaneously in a maximum likelihood framework.

In order to formulate a latent structure model for grouping countries into a small number of classes or market segments, and estimating different parameter vectors for each class, it is assumed that there are k ($1 \leq k \leq K$) mutually exclusive and distinct international market segments. Each country i is assumed to belong to only one segment that is not known in advance. Given k different classes, the prior probabilities of country i belonging to each specific segment are expressed in a vector λ , as $\lambda = (\lambda_1, \lambda_2, \dots, \lambda_k)$.

³Countries classification into segments is not induced by the PL performance (dependent variable) heterogeneity but, rather based on the heterogeneity of the impact of explanatory variables on the PL performance.

Assuming that the probability density function for the latent random variable, Y_i^* , is distributed as a finite mixture of conditional univariate normal densities, $f(\cdot)$, that is,

$$Y_i^* \sim \sum_{k=1}^K \lambda_k f(Y_i^* | X_i, \sigma_k^2, \beta_k) = \sum_{k=1}^K \lambda_k \frac{1}{\sigma_k} \phi\left(\frac{Y_i^* - X_i \beta_k}{\sigma_k}\right),$$

where

- $k = 1, \dots, K$ latent segments/classes,
- β_k : vector of regression coefficients β_{dk} for D explanatory variables ($d = 1, \dots, D$) for latent class k ,
- σ_k^2 : variance parameter for latent class k ,
- $\lambda = (\lambda_1, \lambda_2, \dots, \lambda_K)$, vector of $K - 1$ independent mixing proportions indicating the probability for the country to belong to latent class k . Let us note that $\lambda_k > 0$ and $\sum_{k=1}^K \lambda_k = 1$,
- $\phi(\cdot)$: the standard normal density.

3.3 Within Countries Correlation

As the performance of the private label in a given country is observed at repeated times, the response variable at any one time may be correlated with the response variable at another time. To handle this longitudinal aspect, we assume that for country i , the PL market share is possibly correlated between the observed $t = (t_1, t_2, \dots, t_6)$ years. For $K = 1$, Maddala (1983, p.153; Helsén and al., 1993) wrote the distribution of the censored dependent variable Y_i as follows:

$$h(Y_i | B, \Sigma, \lambda) = \sum_{k=1}^K \lambda_k \left[\left(1 - \Phi\left(\frac{X_i \beta_k}{\sigma_k}\right) \right) \right]^{1-\delta_i} \cdot \left[\frac{1}{\sigma_k} \phi\left(\frac{Y_i - X_i \beta_k}{\sigma_k}\right) \right]^{\delta_i}, \quad (4)$$

where

$$\delta_i = \begin{cases} 1 & \text{iff } Y_i > 0 \\ 0 & \text{iff } Y_i = 0, \end{cases}$$

$\Phi(\cdot)$: the distribution function of the standard normal,

$B = (\beta_1, \dots, \beta_K)$: the parameters for the K different international market segments, and,

Σ_k : the variance-covariance matrix for the k th market segment, so that we take into account the correlation driven by the repeated measures.

$$\text{cov}[Y] = \Sigma = \begin{pmatrix} \sigma_1^2 & \sigma_{12} & \dots & \sigma_{1t} \\ \sigma_{12} & \sigma_2^2 & \dots & \sigma_{2t} \\ \dots & \dots & \dots & \dots \\ \sigma_{1t} & \sigma_{2t} & \dots & \sigma_n^2 \end{pmatrix}; \quad \text{corr}[Y] = \rho = \begin{pmatrix} 1 & \rho_{12} & \dots & \rho_{1t} \\ \rho_{12} & 1 & \dots & \rho_{2t} \\ \dots & \dots & \dots & \dots \\ \rho_{1t} & \rho_{2t} & \dots & 1 \end{pmatrix}$$

Hence for a given category, assuming a sample $Y = (y_1, y_2, \dots, y_I)$ drawn from a mixture of censored conditional normal densities $h(Y_i | B, \Sigma, \lambda)$, the likelihood function, is given by

$$L = \prod_{i=1}^I h(Y_i | B, \Sigma, \lambda). \quad (5)$$

Given the constraints imposed above on λ and all elements of the vector $\Sigma > 0$, the observed X and Y and the specified value of K , we maximize $\ln L$ in (4) to estimate B, Σ and λ . This is achieved through an E-M algorithm (Dempster and al. 1977) by iteratively alternating between an E-step (expectation step)

and M-step (maximization step). In the E-step, the estimated parameters $\hat{\beta}_k$, $\hat{\sigma}_k$ and $\hat{\lambda}_k$ make it possible to compute the posterior probabilities of membership, \hat{P}_{ik} ,

$$\hat{P}_{ik} = \frac{\left[\hat{\lambda}_k \left(1 - \Phi \left(\frac{X_i \hat{\beta}_k}{\hat{\sigma}_k} \right) \right) \right]^{1-w_i} \cdot \left[\frac{\hat{\lambda}_k}{\hat{\sigma}_k} \phi \left(\frac{Y_i - X_i \hat{\beta}_k}{\hat{\sigma}_k} \right) \right]^{w_i}}{h(Y_i | \hat{B}, \hat{\Sigma}, \hat{\lambda})} \quad (6)$$

of each country j into each of the K latent classes, by assigning each country i to the latent class whose \hat{P}_{ik} is the highest. Note that $\sum_{k=1}^K \hat{P}_{ik} = 1$. Those posterior probabilities of membership are used to subsequently compute the mixing proportion λ_i . Then, the estimation moves to the M -step, where the log-likelihood function is maximized with respect to the latent structure parameters B and Σ . We continue to alternate between these two steps iteratively by applying an updating rule until convergence.

4 Variables and Data

The data is obtained from Datamonitor and concerns yearly brand sales from the grocery industry. The data concerns both national brands and private-label sales over a 6-year period, from 2003 to 2008. The sample data covers the “household products category”⁴ for 54 countries in 6 geographical regions (see Table 2): 24 European countries, 3 North American countries, 7 South American countries, 14 Asian countries, 4 African countries and Australia and New Zealand from Oceania. In the analyzed product category, the private label had not been introduced in 17 of these 54 countries (see Table 1).

Table 2: Countries Included in the Analysis

| Countries | |
|----------------------|---|
| Africa | <i>Egypt*</i> , <i>Morocco*</i> , <i>Nigeria*</i> , South Africa |
| Asia | <i>China*</i> , Hong Kong, <i>India*</i> , Indonesia, <i>Israel*</i> , Japan, Malaysia, <i>Philippines*</i> , Republic of Korea, Saudi Arabia, <i>Singapore*</i> , <i>Thailand*</i> , Turkey, <i>Vietnam*</i> |
| Europe | Austria, Belgium, Bulgaria, <i>Croatia*</i> , Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, <i>Lithuania*</i> , Netherlands, Norway, Poland, Romania, Russia, Spain, Sweden, Switzerland, <i>Ukraine*</i> , UK. |
| North America | Canada, Mexico, US |
| Oceania | Australia, New Zealand |
| South America | <i>Argentina*</i> , <i>Brazil*</i> , Chile, Colombia, Peru, <i>Uruguay*</i> , <i>Venezuela*</i> |

*Countries** refer to those where the PL was not introduced during the analyzed period.

Dependent Variable

For each of the 54 countries, retail sales across multiple distribution channels were aggregated and accounted for the total retail sales. Sales through the channels of supermarkets, hypermarkets, pharmacies and warehouse clubs channels were used to assess the global market share achieved by the private label in each country. Table 3 reflects the disparity of the private-label performance between countries.

Explanatory Variables and Hypothesis

Cultural Variables

Hofstede’s (2001) theory of cultural dimension describes the effects of a society’s culture on the values of its members, and how these values relate to behavior. Based on this observation, several studies (Talukdar and al. 2002; Ganesh 1998) investigated country-specific sources of differences related to the penetration potential for new products, they concluded that cultural factors were found to be significant in the international diffusion process.

⁴The category includes bleach, toilet care, dishwashing products, general purpose cleaners and paper products.

Table 3: PL Performance for the Household Products Category

| Countries with the highest PL performance | Market Share 2008 (%) | Countries with the lowest PL performance | Market Share 2008 (%) |
|---|-----------------------|--|-----------------------|
| Switzerland | 44.92 | Japan | 0.07 |
| Spain | 42.21 | Malaysia | 0.08 |
| Denmark | 36.06 | Estonia | 0.22 |
| Germany | 35.59 | Chile | 0.25 |
| France | 35.37 | Republic of Korea | 0.30 |
| Sweden | 35.06 | Hong Kong | 0.40 |
| United Kingdom | 34.95 | Colombia | 0.50 |
| Belgium | 27.53 | Russia | 0.95 |
| Canada | 26.74 | Peru | 1.59 |
| Austria | 24.75 | Indonesia | 1.69 |

Uncertainty avoidance refers to the degree to which the members of a society feel threatened by uncertain, risky, ambiguous or undefined situations, and the extent to which they try to avoid such situations by adopting strict codes of behavior (Hofstede 2001, p.161). In uncertainty-avoiding cultures, consumers try to minimize the possibility of such situations through strict rules and through safety and security measures. According to Bao and al. (2011), the higher the preference for certainty, the greater the aversion to risk and the lower the tolerance for risk. One of the consumer benefits generally attributed to national manufacturer brands is that they reduce consumer risk, because national brands are perceived to have less variability in product quality than do PL brands (Burton and al. 1998). While many studies treat “perceived risk” as a single construct to predict consumer preferences for PLs, Dunn, Murphy and Skelly (1986) considered it instead a multidimensional phenomenon. According to the authors, the functional risk (the PL does not perform) and the financial risk (wasting money) appear to be important factors when buying supermarket products. On the other hand, the social risk (the PL may not be good enough for my friends) is much smaller and seems to be a relatively minor factor in PL buying behavior. More recently, Mieres, Martín and Gutiérrez (2006) concluded that risk aversion negatively moderates the effect of store image, resulting in unsuccessful PL programs; however, they stressed on the fact that social risk has no significant influence on PL brand purchasing. Erdem and al. (2004) stated that PL purchases increase when consumers perceive reduced consequences for making a mistake. This suggests that, since private labels involve purchase risks, risk-averse consumers will be more cautious in evaluating this type of brand and thus they should be less receptive to PL brands. Based on these arguments, we expect that a low threshold of uncertainty avoidance in a country will show a large social acceptance of new phenomenon, providing solid foundations for a successful PL environment.

Hypothesis 1. The uncertainty-avoidance level characterising a country is negatively correlated with private labels performance.

Gini index. Income threshold models imply that the diffusion curve for new products is determined mostly by the shape of the income distribution. Assuming that prices decline over time and that income determines reservation prices, one can make the general claim that diffusion curves “will be flatter in countries in which income is more evenly distributed” (Russell 1980). Talukdar and al. (2002) obtained that the Gini Index is significant only when considering consumer products diffusion. In another context, Deleersnyder and al. (2009) stated that cultures characterized by high distinction between social and economic classes tend to emphasize social class. Social consciousness is high, and consumers are motivated by the need to signal the class to which they belong or to which they aspire. In our hypersignified society, brands have become major conduits to express class differences and social aspirations. To operationalize this income inequality concept in a parsimonious way, we adopt the Gini index, which is a measure of inequality in income distribution (World Bank 2012). By assessing the distance between the “have” and “have-nots”, the Gini index would indicate PL success near shoppers with the lowest disposable income (Glynn and Chen 2009). Our second hypothesis reads then as follows:

Hypothesis 2. The private label success is positively associated with the Gini index of income inequality.

Socio-Economic Variables

In almost any context, socio-economic variables are retained as potential descriptors or discriminators between groups of consumers (e.g., users vs. non-users, heavy vs. light users, etc.). In the context of PLs, Myers (1967) found that these variables had virtually no predictive power in distinguishing the private-brand-prone consumer from the non-private-brand-prone consumer. Likewise, Burger and Schott (1972) found socio-economic variables to be ineffectual in discriminating the private-brand-prone from the national-brand-prone consumer. In our international context, we retain two socio-economic variables, namely, literacy rate and urban population. These variables are often associated with a society's modernity, i.e., the higher the level of education and the percentage of the population living in towns, the more modern is that society.

Literacy rate among adults. Glynn and Chen (2009) found a negative relationship between PL performance and education level. In fact, the latter is highly correlated with income, and therefore, highly educated people have a higher disposable income and can afford to buy manufacturers' brands. In contrast, other studies have shown that well-educated consumers are more confident in their evaluative ability with regard to products and have a higher tendency to purchase private brands (Hoch 1996; Lybeck and al. 2006). Herstein and al. (2012) argued that a high need for cognition is associated with a high inclination to purchase private brands. That suggests that well-educated individuals, who are inclined to analyze and process product-related information, are very likely to appreciate the cost-benefit advantage of private brands. In contrast, individuals with a low need for cognition are not confident in their evaluative ability with regard to products, and therefore, are more likely to base their evaluation on such brand characteristics as the manufacturer's identity. We test the following hypothesis:

Hypothesis 3. Private-label brands are more prone to succeed in countries where individuals have more formal educational qualifications.

Urban population as a percentage of the total population. Modernity –so it seems to be assumed– transformed the market, creating both new needs and a large offering. Thus, the urban market seems to be more profitable for large firms than the rural one due to its density of wealth, proximity, homogeneity and modernity (Ireland 2008). One of the primary indicators of modernity happens to be the level of urbanization characterizing a society. The positive effects for urbanization support the argument in the international and regional economics literature that urban agglomeration lead to greater market efficiency with larger and more varied supply of products and services to consumers (Talukdar and al. 2002). Hill and Still (1984) demonstrated the role of a country's urbanization concerning the acceptance and success of multinational products. Gale (2003) studied the Chinese market and concluded that the striking difference between rural and urban food-consumption patterns suggests that continued urbanization will significantly alter the structure of food's market demand. We thus expect that modern societies would be the most likely to buy private-label brands.

Hypothesis 4. Private labels are more successful in countries with higher urban modernity.

Retail Variables

The characteristics of the market where the private label aims to be introduced undoubtedly have an impact on its performance.

Distribution Channel Modernity. For convenience goods, clearly the more available the product the more opportunity the customers have for buying it (Reibstein and Farris, 1995). In the wake of increasing retail concentration and competition, the retailers' ability to extract guarantees from the manufacturers is a clear demonstration of retailer power. Steenkamp and Dekimpe (1997) mentioned that in smaller European countries like Sweden or the Netherlands, the three largest chains already account for more than 60% of total grocery sales, while this percentage is around 40% for larger European countries such as Great Britain, France and Germany (As a comparison, in the US, Japan and Southern Europe this concentration is below 20%). This increased market share of retailers allows supermarket chains to develop their own brands.

Tarzijan (2004) mentioned the retail market power as an explanation for the success of PL in different countries, notably in Europe and the US, since concentration levels in retail markets have increased markedly as large chain groups have become prevalent. Nenycz-Thiel (2011) and Erdem and al. (2004) stated that retail concentration may well be important but it is not the only factor that differentiates PL performance. The findings suggest that in addition to retailer concentration, store-brand positioning, retailer commitment and marketing may also provide some insights into the differences in PL performance between countries. In the same line, ACNielsen (2005) and Gómez and Benito (2008) linked the importance of the role of retailing in PL development. In markets where a large chain retailer dominates (versus a more fragmented competitive retail environment), national brand and private-label prices increase and PLs have a higher share compared to national brands. Ultimately, researchers seem unanimous about the fact that the distribution weight in the market is a key condition for developing credible and successful private label programs.

Retailers market share in a country is measured by the share of sales made in supermarkets, hypermarkets and warehouse-club channels. Clearly, this measure gives an interesting indication of how much the retail landscape is attractive for PL development, as it is generally the case that these types of retail outlets are the ones that introduce private labels.

Hypothesis 5. The private-label performance is higher with the channel distribution modernity.

Expenditure per capita for the category. Demand-wise, it seems that it takes a “large” market size for a PL to perform in a product category. Indeed, Hoch and al. (1995) concluded that differences in market size have a significant impact on PL sales, implying that product categories with high performance are good terrain for launching and developing PLs. The authors explained that categories with high household penetration and purchase opportunities are propitious to substantial private-label market shares. Hoch and Banerji (1993) obtained that PL shares are higher in categories with higher dollar sales. Contrary to the current findings, Cotterill and al. (2000) considered that private labels operating in markets with categories with a higher level of expenditure will have a more difficult time penetrating the market. Following the general trend in the literature, we state the following hypothesis:

Hypothesis 6. The higher the expenses allocated by households to the category, the greater will be the private brand performance.

Table 4: Descriptive statistics

| | N | Min | Max | Mean | St. deviation |
|--------------------------------------|-----|------|------|-------|---------------|
| Dependant Variable | | | | | |
| PL market share (%)- 37 countries | 222 | 0.08 | 44.9 | 14.5 | 13.6 |
| PL market share (%)- 54 countries | 324 | 0.00 | 44.9 | 9.9 | 13.1 |
| Independent Variables | | | | | |
| Uncertainty avoidance index | 300 | 8 | 112 | 65.0 | 23 |
| Gini index | 324 | 23 | 66 | 37.4 | 9.5 |
| Literacy rate among adults (%) | 324 | 52 | 100 | 94.0 | 9.5 |
| Urban population (%) | 324 | 25.6 | 100 | 71.15 | 17.1 |
| Channel distribution modernity (%) | 324 | 3 | 86.8 | 51.0 | 23.2 |
| Category expenditure per capita (\$) | 324 | 0.5 | 97.9 | 33.6 | 27.2 |

5 Analyses and Results

5.1 Model selection

Consistent with the latent-class segmentation approach, we estimated the model assuming a fixed number of segments. On the basis of changes in model fit statistics (Bayesian information criterion (*BIC*)), we

determined the appropriate model specification. This criterion is given by

$$BIC = \ln L - \frac{m}{2} \ln N,$$

where $\ln L$ is the log-likelihood function given in (3), m the number of parameters and N the number of observations (324 in this study). The model with the lowest BIC indicates the best number of segments to use. Based on the information in Table 5, and later confirmed by the results of segments description, we retain a two-segment configuration. (All solutions with more than three segments yield a larger BIC value)

Table 5: Fit of Latent Class Models

| | One segment | Two segments | Three segments |
|----------------|-------------|----------------|----------------|
| Log-likelihood | -912.1 | -720.7 | -509.2 |
| Parameters | 8 | 17 | 26 |
| BIC | 1,855.7 | 1,508.2 | 1,520.7 |

Table 6 provides the composition of the two segments, including only countries where the PL was launched. Note the large difference in the average PL's market share in the retained market segments.

Table 6: Composition of Segments

| | |
|------------------|--|
| Segment 1 | Australia, Bulgaria, Chile, Columbia, Estonia, Greece, Hong Kong, Ireland, Japan, NZ, Peru, R. of Korea, Romania, Russia, Saudi Arabia, South Africa, Turkey |
| Segment 2 | Austria, Belgium, Canada, Czech R., Denmark, France, Germany, Hungary, Indonesia, Italy, Malaysia, Mexico, Netherlands, Norway, Poland, Spain, Sweden, Switzerland, UK, US |

5.2 Results

Table 7 summarizes the estimation results for the one-segment OLS model, the one-segment censored-data model and the two-segment latent-class model. A comparison of the two one-segment models shows that the OLS model underestimates the coefficients of the explanatory variables. A manager using this (here) naive model would significantly understate the sensitivity of PL performance to literacy rate, as well as to the Gini index in a given country. Looking at the results of the two-segment model, we clearly see two different structures in terms of significance and in terms of the coefficient values of the independent variables. Indeed, whereas channel distribution modernity and uncertainty avoidance are significant in segment 1 but not in segment 2, we observe the reverse for the category's expenditure per capita and Gini index. Further, the other two variables (literacy rate and urban population) have negative coefficients in segment 1 and positive ones in segment 2. Finally, we observe that with an R^2 of 0.863, the explanatory power of the two-segment latent-class model is much higher than the two others.

5.3 Verification of Hypothesis

Now, we briefly discuss one by one the verification of our hypothesis.

Uncertainty avoidance (H1). Our hypothesis of a negative relationship between uncertainty avoidance and PL performance is verified for segment 1. If, to start with, PLs are (perceived as) more risky than national brands, then a risk-averse consumer will avoid them. This common-sense argument is supported in Erdem and al. (2004) who stated that risk perception plays an important role in consumers' brand choices. At the country level, as uncertainty avoidance gets higher, the tolerance to the risk associated with buying a PL decreases, making its purchase less appealing to consumers. Social and cultural characteristics in these markets are the probable causes of the difficulty for PL to become a significant part of the consumer's shopping basket. In these countries, products are considered hedonic and viewed as symbols. Famous brand-name products signify class and status among consumers, so social stigma remains a barrier for private-label

Table 7: Parameters Estimates

| | One segment | | | | Two segments | | | |
|-------------------------|-------------|------|---------------|-------|--------------|------|------------|-------|
| | OLS | | Censored data | | Segment 1 | | Segment 2 | |
| | Parameter | s.e. | Parameter | s.e. | Parameter | s.e. | Parameter | s.e. |
| Intercept | 12.47* | 6.81 | -25.62* | 12.71 | 54.07* | 6.66 | -68.54* | 24.86 |
| Uncertainty avoidance | -1.88 | 2.42 | -0.92 | 3.12 | -6.91* | 1.32 | 1.12 | 3.29 |
| Gini index | 36.21* | 6.90 | 39.89* | 8.57 | 1.60 | 3.14 | 57.59* | 11.07 |
| Literacy rate | 6.63* | 7.46 | 43.99* | 13.46 | -26.24* | 6.52 | 83.79* | 24.33 |
| Urban population | -4.86 | 4.10 | -4.60 | 5.41 | -39.22* | 2.23 | 29.30* | 6.89 |
| ll Channel distribution | 3.60 | 4.37 | 4.23 | 5.52 | 14.17* | 2.23 | -10.03* | 5.62 |
| Category's exp. | 1.18* | 1.77 | 12.54* | 2.19 | 0.81 | 1.00 | 10.81* | 2.11 |
| Error variances | 83.46 | | 118.88 11.33 | | 7.74 1.03 | | 53.84 6.93 | |
| Segment size (%) | 100 | | 100 | | 45.1 | | 54.9 | |
| R^2 (%) | 52.5 | | 54.5 | | 86.3 | | | |
| $p^* < .005$ | | | | | | | | |

Table 8: Segments Description

| | Censored segment | | | Segment 1 | | | Segment 2 | | |
|--------------------------|------------------|-------|-------|-----------|-------|-------|-----------|-------|-------|
| | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| Private label share (%) | 0.00 | 0 | 0 | 4.01 | 0.07 | 19.43 | 23.46 | 0.08 | 44.92 |
| Category's exp. | 14.62 | 0.5 | 58.19 | 31.74 | 7.15 | 79.74 | 51.30 | 1.40 | 97.93 |
| Channel distribution (%) | 36.53 | 3.01 | 69.35 | 52.55 | 20.40 | 86.75 | 61.98 | 29.20 | 85.77 |
| Uncertainty avoidance | 60.07 | 8 | 100 | 72.82 | 29 | 112 | 61.65 | 23 | 94 |
| Urban population | 63.84 | 25.56 | 100 | 73.46 | 53.7 | 100 | 75.42 | 45.66 | 97.26 |
| Literacy rate (%) | 87.91 | 52 | 100 | 95.44 | 80 | 100 | 97.97 | 88 | 100 |
| Gini index | 41.37 | 29 | 58 | 40.34 | 24 | 66 | 31.73 | 23 | 49 |
| <i>Observations (N)</i> | 102 | | | 102 | | | 120 | | |

growth. This recalls Sudhaman's (2004) finding that Chinese consumers give more importance to brand name, compared to US and European consumers.

Our hypothesis is not confirmed for segment 2, which (this time) is consistent with Mieres and al. (2006) who obtained, using Spanish data, that social risk is not a significant influence on PL purchasing. Our dual result is interesting for at least two reasons. First, in terms of marketing strategies, it is a reminder that what works in a given cultural setting may not be as successful in another. The burning question for retailers who wish to develop PLs in the first segment is then how to design marketing strategies that can reduce the perceived risk associated with their purchase. Second, in terms of methodology choice, this difference fully justifies our adoption of an approach that defines market segment endogenously, and provides information on how these segments differ.

Gini index (H2). In a nutshell, we obtain that, whereas revenue inequality represents an opportunity for PLs in segment 2, it plays no significant role in segment 1. Our result for segment 2 corroborates the findings in Van den Bulte and Stremersch (2004) and Talukdar and al. (2002), namely, a positive influence between the Gini index for inequality and product diffusion. These results confirm those of Glynn and Chen (2009), namely, that shoppers with lower disposable income would predispose PLs to success. Why the same statement cannot be made for segment 1 is the key question here. One possible explanation of the behavioral difference between the two segments is that purchasing decisions by lower-income consumers in the wealthy economies making up segment 2 are price driven, whereas consumers in segment 1 are, as said before, hedonistic and risk averse in their purchasing behavior. The price differential in favour of PLs seems not to be a sufficient reason to divert segment 1 consumers from national brands. In some sense, we confirm some cross-cultural studies (Leach, 1993) showing that materialism (which, in our context, may more modestly be called value-seeking) is more common in the Western-world segment 2. In emerging and Eastern European

countries (segment 1), consumers try to imitate the more extravagant consumption of their counterparts in more advanced economies with whom they come into contact.

Literacy rate and urban population (H3 and H4). We pool our discussion of H3 and H4 for two reasons. First, both hypothesis are related to socio-economic development. Second, the results are convergent, and therefore pooling them will avoid us repeating some arguments. The impact of these two variables is significant for both segments, however with different signs. The main message is that a higher socio-economic development level leads to higher PL performance in segment 2, and lower performance in segment 1.

The impact of education on PL purchasing was investigated in a number of studies using American data. See, e.g., Hoch (1996). One result is that educated consumers have a higher propensity to purchase private brands than less-well-educated ones. Hoch (1996) and Herstein and al. (2012) explained this intriguing result by the fact that highly educated consumers are more confident in their evaluative ability regarding products. Also, as higher education means (normally) higher revenues, well-educated consumers have many opportunities to signal their status other than by purchasing supermarket national brands. So for this segment, consumers are utilitarian and base their product purchases on functional considerations related to need, fundamentals, necessity and problem solving (Mano and Oliver 1993). Further, urban areas are more attractive for large firms (retailers) than rural areas due to their density of wealth, proximity and modernity (Ireland 2008). As PLs are launched and developed by large retailers, the link between urbanism and PL performance is therefore easy to see.

Countries belonging to segment 1 do not follow the same logic, that is, there is a negative association between PL performance and socio-economic development. If we consider that a higher literacy rate and larger urban population are positively correlated with revenues, then our result indicates that PL performance is decreasing in wealth in this segment. The conjecture here is that where there is a higher standard of living, national brands become more coveted, leading to a lesser demand for private labels. In economic terms, our results show that whereas private labels are normal goods in segment 2, they somehow have the status of inferior goods in segment 1.

Channel distribution modernity (H5). Here the results again differ for the two segments. In segment 1, we obtain, as in, e.g., Tarzijan (2004), Gómez and Benito (2008) and ACNielsen (2005), that modern distribution channel leads to a higher PL market share. In segment 2, retailing modernity is not a significant determinant of PL performance. In Global Retail Concentration Report (2002), it is stated that: (i) the retail industry in developed markets (US, European Union) experienced accelerated levels of globalisation in the 1990s until it reached saturation and is now looking abroad for growth opportunities; and (ii) the retailing battlegrounds of the future are likely to be in markets such as China, Russia, Japan and Africa. Howard (2009) mentioned that the emerging markets of Asia Pacific are particularly attractive to international retailers such as Wal-Mart, Tesco, Carrefour, Aldi and Seven and I. Indeed, Carrefour opened 23 new stores in 2007, the largest number of hypermarkets it has ever opened in one country in a single year. In light of these statements, one interpretation of our results is that there is a lag in terms of retail consolidation in the countries of the two segments, and its impact is no longer visible in our data for segment 2. It is as if the impulse of retail concentration needed to launch and develop PLs has already occurred in segment 2, whereas it is still in progress in the countries of segment 1.

Category's exp. per capita (H6). We expected that a larger market size would lead to a higher PL performance. We obtain that market size does not affect market share in segment 1. In segment 2, even if the impact of market size is very small, we can state that, for these countries, a large market size offers private labels an opportunity to seize untapped market potential.

6 Conclusions

The objective of this study was to explain the variability in performance of private labels in international markets. To the best of our knowledge, this is the first research to be conducted at this scale, i.e., 54 countries, with observations spanning a six-year period. Indeed, whereas almost all available studies focused on US

and a few European markets, ours shed light on PLs' acceptance in a much more diversified setting. Our econometric model performs very well statistically and makes it possible to uncover the determinants of PLs' market shares in each market segment. In particular, we obtained that education, degree of retail modernity, uncertainty avoidance and urbanism significantly affect the performance of PLs, but not necessarily in the same way in the two endogenously determined market segments.

Although store brands are an essential element in every large retailer's marketing strategy, neither they nor the manufacturers of these PLs know enough yet about their consumers' purchasing predispositions, beyond their socio-cultural profiles. As shown in this paper, cultural and other socio-economic characteristics are influential on PL success, making the rate of PL acceptance differing considerably between regions and across countries within the same region. In some geographical markets (segment 1's countries), PL products are regarded as cheap and low-quality alternatives for branded products. In some other countries (segment 2) retail brands were attracting price-oriented customers, but with the improving emphasis on quality, these products have started to also attract value-conscious customers (Nandan and Dickinson 1994). The need for a complete and in-depth analysis of international variability in launching and positioning PLs was on the research agenda elaborated by Keller and Lehmann (2006). The findings reported here help to fill the gap and redress the paucity of research into the cross-cultural aspect of private-brand consumption, by investigating cultural profiles and providing a unique view of the factors leading to the growth of PL business in different markets. While business managers have relatively little influence on such variables, our findings can still serve as an empirical guide for the variables that they should consider in evaluating diverse international markets and for performing sensitivity analysis with respect to their projected trends. Our results suggest that retailers should not take a generic approach to the marketing of their private brands (for instance, a single strategy for the whole Mediterranean region). Managers had better develop differentiated strategies for each country (or culturally similar group of countries) in which the brands are made available. This applies especially to such multinational retail chains as Walmart, Aldi, Carrefour, Tesco, etc.

In order to maximize their marketing and sales efforts, retailers offering private brands in developed PL countries (segment 2) should target well-educated consumers by offering products in phase with the customers' utility-maximization decisions. Retailers have an incentive to maintain and enhance their products' quality. More preferably, retailers could expand their offerings to respond to more specific needs than simply offering quality products at lower prices. With PLs that offer healthy organic options as well as financial, insurance and telecommunication services, retailers with strong PL offerings would hardly be challenging the position of branded products in the minds of the consumers. In developing countries, customers are being increasingly exposed to private labels through retail expansion and are becoming more aware of their benefits. Still, retailers offering their brands should target materialistic consumers who expect to get much more than a good product for a fair price. The offer of PL products must be in line with consumer expectations to reflect their status or "rightful place" in society. Suitable packaging, promotions and advertising strategies can help achieve the appropriate product positioning. Early placement of PL products might better position them for success, as the popularity of brand image changes over time and grocery products will no longer be deemed status items. In these developing countries, in order to develop the market and raise interest in store brands, retailers should consider educating their customers by explaining that the quality of the private brand is at least equivalent to that of alternative national brands, at a lower price.

In terms of shortcomings that require further investigation, we wish to mention two. First, as usual in this macro-type of study, by describing a country with a single aggregate measure, we dilute the multitude of consumption patterns that could be observed within that same country. This suggests that a two-step segmentation approach, i.e., inter- and intra-country segmentation would be welcomed. Second, as retailers' decision to launch their own label varies across categories, depending on many factors characterizing each of the product categories (high margins, profitability enhancement, bargaining power, etc.), it would be interesting to integrate this first-stage decision into the model in order to explain what affects the PL-introduction decision across cultures and to present a clearer understanding of the whole process of a PL's performance.

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