Defensive Strategy Against a Private Label: Building Brand Equity

S. Chan Choi

Abstract We build a game-theoretic model of price competition between a national brand manufacturer and a retailer that also sells its private label. In particular, we examine brand-equity building as a strategy for the national brand manufacturer. We find that brand building should be the first line of defense instead of aggressively cutting the wholesale price. Not only the national brand but also the retailer can benefit from it, which can justify cost sharing of brand-building efforts with the retailer.

Keywords Private Label • Price Competition • Brand Equity • Channel Distribution

1 Introduction

In this paper, we are interested in understanding defensive strategies of a national brand manufacturer facing private label competition. To a national brand manufacturer, a retailer who sells the private label is both a channel partner and a competitor at the same time. However, this competitor also controls the retail price of the national brand, which gives the retailer a greater pricing power (Dhar & Hoch, 1997). Hence, it is important for the national brand to formulate a defensive strategy that is consistent with the retailer's interest. We focus on the national brand's equity-building strategy for their ability to attract the retailer cooperation, instead of competition. This is consistent with Steenkamp, Van Heerde, and Geyskens (2010) who suggested marketing activities to enhance consumer willingness to pay for the national brands.

S.C. Choi (✉)
Supply Chain Management and Marketing Sciences, Rutgers Business School—Newark and New Brunswick, 1 Washington Park, Newark, NJ 07102, USA
e-mail: chanchoi@rutgers.edu

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Previous studies in private label modeling include Rao (1991) who developed a model of private label competition in price and promotion and found that only the national brand tends to promote in price. The demand function was derived from a distribution of price premium in two market segments.[1] Narasimhan and Wilcox (1998) viewed private labels as the retailers' competitive weapon of gaining better terms of trade from the national brand manufacturer. As in Rao (1991), their demand function is derived by mixing distributions of reservation price and brand equity. We also employ a similar framework of mixing two distributions in deriving a demand function in this paper. Another line of private label modeling is to consider price competition within a distribution channel. Raju, Sethuraman, and Dhar (1995) proposed an analytical model of private label competition using a vertical channel assumption. In this paper, we combine these two model frameworks in representing the private label competition.

In the next section, we begin with building a general demand model in the context of national brand and private label competition using consumer distributions of reservation price and brand equity. Section 3 presents a profit maximization problem for the two products in competitive-cooperation. Brand-building marketing efforts are expressed in terms of a shift in the equity function distribution. Due to its analytical complexity, we rely on a numerical method to examine the effects of brand-equity on equilibrium quantities. We show that brand-building efforts are profitable to both parties, and are more likely to induce the retailer cooperation than retail price-cutting. The last section summarizes the paper and suggests future research directions.

2 A Model of Private Label Demand

The retailer in our private label model plays a major role by choosing its price (p_p) as well as the retail margin (m_n) for the national brand. The national brand manufacturer determines his wholesale price (w_n) but does not have a direct control over its retail price (p_n). We assume that the private label manufacturer is an order taker without any significant marketing activities, and supplies the product at a contract price to the retailer (c_p). This assumption is reasonable since in most cases private label orders are processed through private label brokers whose role is to match the retailers with the manufacturers. A broker can choose a manufacturer that can supply a specified product at the lowest transfer price. This scenario is similar to the common retailer model with two manufacturers (Choi, 1991) except that only one manufacturer is active in our game scenario.

We first derive the primary demand function for the national brand. Assume that all prices are normalized within the interval [0,1]. Let $f(p)$ the p.d.f. of consumer

[1] The price premium and market segments are equivalent to "brand equity" and "reservation price" respectively in this paper.

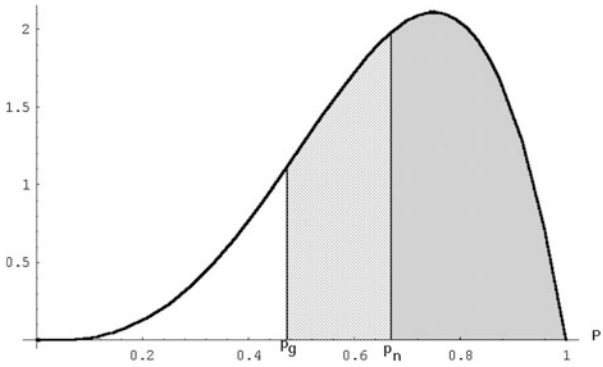

Fig. 1 A possible reservation price distribution

reservation prices defined over the domain of $p \in [0,1]$ (see Fig. 1). When there is only national brand at price $p = p_n$, only those consumers whose reservation prices are greater than p_n will purchase the product. But when a private label is also available at a lower price p_p, consumers whose reservation prices are below p_p would still not buy either product. However, consumers located between p_p and p_n, who could not afford the national brand, now can buy the private label.

On the other hand, those customers whose reservation prices exceed p_n now have a choice. They can continue purchasing the national brand or switch to the private label depending on their willingness to pay for the perceived brand name. This brand premium will be different across individuals (Rao, 1991), and they will switch to the private label when the price difference is "right." We use the term "brand equity" to refer to the minimum price difference at which a consumer switches to a private label. This is the same concept as the one used in Narasimhan and Wilcox (1998), and will be used interchangeably with Raju, Srinivasan, and Lal's (1990) definition of brand loyalty—"the minimum difference between the prices of the two competing brands necessary to induce the loyal consumers of one brand to switch to the competing brand." This is equivalent to the price premium over private label (Steenkamp et al., 2010).

Let random variable δ denote individual-level brand equity, and $h(\delta)$ its p.d.f.[2] Then among the consumers whose reservation prices exceed p_n, those with higher brand equity than the actual price difference (i.e., $\delta \geq d = (p_n - p_p)$) will still choose the national brand, and the rest will switch to the private label.

Therefore, the demand function for the national brand can be derived

[2] Conceptually, this distribution is dependent on a person's reservation price: i.e., a consumer with a higher reservation price is expected to place a higher premium for a national brand. For tractability, however, we assume that h is independent from f. Relaxing this assumption is left for future research.

$$D_n(p_n \cdot p_p) = \int_{p_n}^{1} f(x)dx \int_{p_n - p_p}^{1} h(\delta)d\delta$$

Similarly, the demand for the private label can be derived as

$$D_p(p_n \cdot p_p) = \int_{p_p}^{p_n} f(x)dx + \int_{p_n}^{1} f(x)dx \int_{0}^{p_n - p_p} h(\delta)d\delta$$

The retail price for the national brand has two components: $p_n = w_n + m_n$. The first term represents extra primary demand generated by the entry of the generic product. The second term represents the part of the original demand of the national brand that is taken away by the private label.

3 Modeling Brand Building with the Beta Distribution

In this section, we employ a very flexible distribution in order to build a model for the manufacturer's brand-building effort as a defensive strategy. In our context, increasing brand equity can be represented by a shift in the distribution of individual brand equity such that fewer consumers would switch to the private label for a given price difference. In the literature, several theoretical distributions have been used to model reservation prices. In Kohli and Mahajan's (1991) analysis, reservation prices are distributed as idiosyncratic normal distributions with different parameters across consumers. Moorthy (1988) assumed that consumer reservation prices are uniformly distributed. In this paper, we employ a beta distribution for its flexibility of fitting various shapes including a bimodal distribution for two distinct market segments (e.g., Blattberg & Wisniewski, 1989). With two parameters α and β, the beta distribution is defined by two parameters $\alpha > 0$, $\beta > 0$ within a domain $0 < x < 1$. Denote (α_1, β_1) and (α_2, β_2) the parameters for the reservation price (f) and brand equity (h) distributions respectively. Figure 2 shows a special case of bi-modal segments.[3] The brand equity distribution is likely to be associated with the reservation price distribution. For tractability, however, we assume these two distributions are assumed independent from each other in this paper as in many other studies.

Instead of engaging in a losing battle of price-cutting, the national brand manufacturer can focus on various marketing activities in order to increase its brand equity. Since retailer cooperation is a key factor in a successful defensive

[3] For the numerical simulation, we have used a small convenience sample survey administered to an MBA class asking individual willingness to pay for a branded acetaminophen and a minimum price difference before moving to a store brand equivalent. The following parameter values were estimated: $\alpha_1 = 4.04$, $\beta_1 = 1.68$, $\alpha_2 = 0.58$, $\beta_2 = 0.60$. Figures 1 and 2 respectively shows the corresponding distributions.

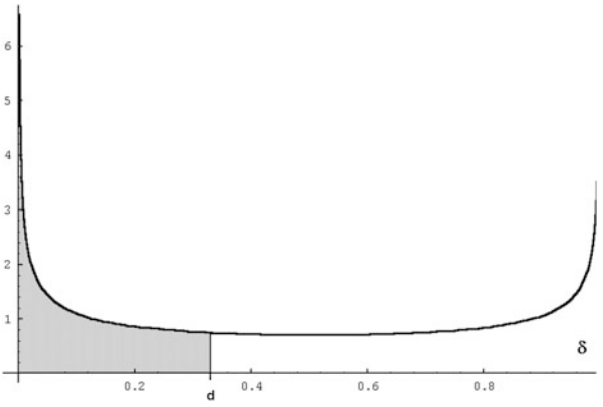

Fig. 2 A possible brand equity distribution

strategy, we want to examine whether higher brand equity benefits the retailer who carries a private label. It is out of scope of the current paper to examine market reaction functions of brand equity. Instead, we assume that such an activity shifts the brand equity distribution to the right: i.e., more consumers become brand loyal. Following Raju et al. (1990) and Rao (1991), we classify the consumers into brand-loyal and non-loyal segments. The middle value of parameter $\delta = 0.5$ was used as the segmentation criteria. In our model, this shift can be represented by various values of α_2 in the brand equity distribution. Increasing the value of α_2 reduces the price-sensitive (i.e., less brand-loyal) segment. We let the value of α_2 vary from 0.58 (the current value) to 1.58. At $\alpha_2 > 1.08$, the distribution becomes unimodal.

The resulting equilibrium solutions reveal the following properties:

$$\frac{\partial p_n^*}{\partial \alpha_2} \sim 0, \frac{\partial p_p^*}{\partial \alpha_2} < 0, \frac{\partial \Pi^{M^*}}{\partial \alpha_2} > 0, \frac{\partial \Pi^{R^*}}{\partial \alpha_2} > 0.$$

That is, as more consumers become brand loyal, the national brand's retail price initially decreases in brand loyalty but eventually increases. As expected, the manufacturer always benefits with the increased brand loyalty. The private label's price decreases as expected, but regardless the retailer also benefits from the national brand's increased equity. The retailer benefits more from national brand's equity increases than it loses from the private label's sales.

Observation 1 *The national brand's wholesale price increases in brand loyalty, whereas its retail margin decreases.*

Observation 2 *All channel members benefit with increased brand loyalty to the national brand.*

With these observations, we state the following testable propositions on brand-building efforts by the manufacturer:

Proposition 1 *A brand-building effort by the national brand manufacturer will find a cooperative reaction by the retailer.*

Proposition 2 *With a brand-building effort by the national brand, the retailer has less incentive to push his own private label due to smaller profit margin.*

Note that these results were derived without considering other positive impacts of increased brand equity such as generating more store traffic and increased primary demand. Even without these factors, equity building appears to be a win-win strategy for all channel members. However, the cost effectiveness of such marketing effort also needs to be considered before making such decisions.

4 Conclusion

Private labels have rapidly become a major force in retail marketing during the past decade. When taken as a single brand, they are the number one, two, or three best sellers in many product categories. Moreover, their market shares are rapidly increasing, and they pose great threats to the national brand manufacturers. Severe erosion of their market shares and profits discourages product development and innovation. This, in turn, will reduce future profit potential, and threaten the very survival of the national brands.

Rao (1991) found that a national brand's best reaction in price to a private label is to choose a regular price and then to promote according to a certain probability distribution. On the other hand, conventional wisdom indicates that the manufacturer's best reaction would be to cut his wholesale price in the hope to lower its retail price. On the contrary, its retail price may even end up increasing if the retailer pushes its private label. The retailer has an incentive to increase the national brand's retail price in order to make room for his own brand. Moreover, a wholesale price cut tends to decrease the retailer's margin. Thus, a national brand manufacturer is unlikely to find retailer cooperation when cutting its wholesale price. This implies that if the national brand manufacturer relies only on price competition as a defensive strategy, a substantial wholesale price cut is necessary. Even so, the retail price may barely decrease.

On the other hand, we show that a manufacturer who focuses more on building brand equity by various marketing efforts can expect a full cooperation from the retailer. This is because the retailer also benefits from the increased brand equity of the national brand: i.e., the retailer's total profit increases, although his profit from the private label decreases. As a result, the retailer has a less incentive to push aggressively his private label at the expense of the national brand.[4] This implies that brand building should be the first line of defense instead of aggressively cutting the wholesale price. The benefit to the retailer could even justify cost sharing of brand-building efforts with the retailer.

[4] To keep the model manageable, we do not consider marketing expenses for increasing brand equity, which is one of the limitations of this study.

Among the limitations of our study is that, with the beta distribution assumption, analytical solutions are difficult to obtain due to the complexity of the resulting demand functions. However, we believe that the results from the simplest uniform distribution are qualitatively same as those from the more flexible beta distribution. The latter distribution, however, can provide additional information related with brand-building efforts by the national brand manufacturer. Another caveat is that our model includes only price decisions: other factors such as product differentiation, quality level, and other implicit relationships among channel members are not considered.

Our model also does not cover other factors such as market and economic conditions, level of competition from other national brands. Further studies are needed to build more comprehensive models of competition between national brands and private labels. Extending from the simple game structure developed in this paper, we will be able to study more complex competitive scenarios. One immediate area to extend the current study is to include retailer-manufacturer coordination in advertising and promotion in order to examine the extent to which national brand manufacturers can influence the retailer's decision. In addition, other possible manufacturer strategies to defend the market share, such as product differentiation and quantity discount, could be examined in more advanced models.

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