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Branding Conspicuous Goods: An Analysis of the Effects of Social Influence and Competition

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Branding decisions are critical for the success of new products. Prior research on branding and brand extension has primarily focused on how branding influences consumers' perceptions of product quality. However, consumers of conspicuous goods care not only about product quality but also about the profile of its users. For example, high-end consumers prefer an exclusive brand. On the other hand, low-end consumers may find a brand more attractive if high-end consumers use it. In this paper, we analyze how social effects and market structure can influence the branding of conspicuous goods. Consistent with intuition, our theoretical analysis shows that a monopolist would prefer not to use umbrella branding when consumers' desire for uniqueness is high. By contrast, in a competitive market, umbrella branding is more profitable than individual branding when consumers have a high level of desire for uniqueness. We also identify conditions in which it is optimal for marketers of conspicuous goods to adopt either an individual branding strategy or asymmetric branding strategies. Furthermore, competing firms may offer umbrella branding even when both firms may be better off if they could commit to using individual branding. Finally, we extend the model to consider a market where consumers' product preference is not related to social status. Again, if consumers are sufficiently snobbish, competing firms earn more profits by adopting an umbrella branding strategy instead of an individual branding strategy.

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1. Introduction

Brand name plays an important role in the marketing of conspicuous goods such as handbags, watches, and cars. According to market research organization Millward Brown, the profits attributable to the Louis Vuitton brand name alone and its power to attract customers are $24.31 billion, whereas the corresponding value of Rolex is $5.29 billion (Wischhover 2011; see also Kapferer and Bastien 2009). Given the significance of these brands, there is much folk wisdom on how managers should nurture and leverage these brands. For example, the chief executive officer of The Luxury Institute cautions that conspicuous brands risk losing their prestige if they cater to the masses (Case 2004). Counter to this view, however, we see BMW and Mercedes stretching their brands downward to cater to low-end markets. These observations raise the theoretical question: Should a manufacturer of conspicuous goods extend its current brand to cater to a low-end market, or should it launch a new brand to address the market?

A large body of literature in marketing has examined when and how a firm can use its existing brand name to appeal to new markets (see Keller and Lehmann 2009 for an overview). However, much of the prior literature has taken a product-centric view of branding—that branding either directly or indirectly influences consumers' perceptions of product quality. Furthermore, most studies have ignored the role of competition in shaping a brand's value. For example, in a seminal theoretical analysis of umbrella branding, Wernerfelt (1988) shows that a monopolist can leverage its brand name to signal to consumers the high quality of its new product (see also Choi 1998, Cabral 2000, Moorthy 2012). There is also considerable behavioral research on the cognitive and affective basis of branding and the factors that moderate the transfer of goodwill from the parent brand to the extension (Aaker and Keller 1990). In particular, the behavioral literature on brand extension examines how a firm can stretch its brand name from one product category to another category, rather than from one

set of consumers to another group of consumers. This literature thus views brand extension as essentially a within-consumer phenomenon instead of a between-consumer phenomenon (e.g., Broniarczyk and Alba 1994, Janiszewski and van Osselaer 2000).

In addition to perceived product quality, consumers of conspicuous goods care about the *type* and *number* of consumers adopting the same brand. Thus, the composition of consumers lends value to a brand, and it is one of the reasons why over 60% of consumers use designer brands (Bokaie 2008). Recognizing the social effects, The Luxury Institute uses two scales to rate leading global brands: the Luxury Customer Experience Index and the Luxury Brand Status Index. The first index captures product quality, whereas the second one measures intangible aspects such as the feeling of exclusivity and uniqueness (Kapferer and Bastien 2009). Note that whether a firm's brand is exclusive depends on the firm's branding and pricing strategy as well as its competitors' strategies. Thus, the value of a conspicuous good's brand name crucially hinges on both social effects and competitive effects. The extant research, however, has largely ignored the role of social factors and market structure in branding decisions, perhaps because the literature is grounded in packaged goods such as those found in grocery stores. The purpose of this paper is to develop a game-theoretic model to analytically examine the issue of branding conspicuous goods.

We consider a market comprising two segments of consumers. Consumers in the first segment have a desire for uniqueness and wish to distinguish themselves from consumers in the other segment. We label these consumers *snobs*. Because snobs have a higher willingness to pay for quality, firms cater to them by offering a high-quality product. Consumers in the second segment prefer to buy the brand adopted by snobs, and they have a lower willingness to pay for quality. We label these consumers *followers*. By adopting an umbrella branding strategy, a firm can sell its products at a higher price to followers. The umbrella branding strategy, however, comes at a cost to the firm because it reduces the attractiveness of the brand for snobs. To begin with, we analyze the branding decisions of a monopolist and then show how competition impacts these decisions. Our results show that a monopolist would pursue umbrella branding when its positive effect on followers exceeds its negative effect on snobs. That is, a monopolist will adopt umbrella branding if the desire for uniqueness is *weak* among snobs. However, the results are much different when we allow competition. Counter to our intuition, umbrella branding is an equilibrium strategy when snobs have a *strong* desire for uniqueness. To understand the rationale for this result, note that umbrella branding induces a direct effect and an indirect (strategic) effect in a duopoly. Umbrella branding directly reduces the utility snobs derive from the product and increases the utility followers derive from the product. The effect on the reservation prices, however, is the same for both the firms. Consequently, in a duopoly, the direct effect of umbrella branding on equilibrium prices and profits is zero, leaving the indirect (strategic) effect to determine the overall effect of umbrella branding. When the desire for uniqueness increases, firms are less motivated to sell to followers, and this softens price competition in the follower market and improves firms' profits. Thus, although the marginal value of umbrella branding may be negative in a monopoly, it could turn positive in a duopoly.

Furthermore, our analysis suggests that competition can lead to situations in which both firms offer umbrella branding, although they would be better off if they could commit to individual branding. We also identify situations in which only one firm uses umbrella branding, implying that symmetric firms could adopt asymmetric branding strategies. Thus, the paper clarifies how social effects influence the brand value of conspicuous goods, and it highlights how the value of a brand name is sensitive to market structure.

We extend our model in several ways to further highlight the need to consider social effects while branding conspicuous goods. In the preceding theoretical analysis, we investigated how interfirm competition may affect branding decision. In an extension, we examine the case where some followers could potentially switch between the different products of a firm. In particular, some followers might buy the high-quality product when the firm uses individual branding. However, if the firm adopts umbrella branding and offers the low-quality, cheaper product under the same brand name, these followers may switch to buying the low-quality product. Intuition would suggest that the presence of consumers who are willing to buy a low-quality product because of umbrella branding would deter firms from adopting umbrella branding. Our analysis shows that this intuition is valid in the case of a monopolist, and the firm would prefer individual branding as the proportion of intrafirm switchers among followers increases. A duopolist, however, might prefer umbrella branding because the profitability of umbrella branding could increase as the proportion of switchers among followers increases. This is because, as followers are likely to be more price sensitive, they tend to intensify price competition if firms pursue individual branding. Thus umbrella branding could become more profitable for the competing firms as the size of the switching segment increases. We obtain directionally

similar results if both snobs and followers could purchase the product not intended for them. Next, in our original model we assumed that snobs prefer high-quality products, whereas followers prefer low-quality products. This raises the question of whether umbrella branding will yield more profits than individual branding if product preference is not related to social status. Additional analysis shows that an umbrella strategy provides a duopolist more profits than an individual branding strategy. Finally, in another extension, we examine a model where a firm can improve its perceived quality through brand associations. This extension illustrates why failing to consider the social effects can lead to wrong branding decisions.

The rest of the paper is organized as follows. In the following section, we relate our work to prior literature. In §3, we present our theoretical model, and then we discuss the monopoly and duopoly results in §§4 and 5, respectively. In §6, we present the model extensions. Finally, we conclude the paper in §7, outlining a few managerial implications of our research and providing directions for future research.

2. Related Literature

Our work is related to the theoretical literature on umbrella branding and brand extension. When a firm stakes its reputation by extending its established brand name to a new product, consumers believe that the quality of the new product is high. This is because a firm will not risk losing its goodwill by lending its name to a low-quality product (Wernerfelt 1988). This result, however, is contingent on the assumption that the quality of the established product is not firmly settled in consumers' minds, and as such, the brand extension could affect the stream of future profits from the established brand. Furthermore, as an unsuccessful brand extension could reduce a firm's ability to introduce brand extensions in the future, the firm could use future profits from future products as a bond when it extends its brand name to a new product (Choi 1998). But when should a firm stretch its brand name? Prior research shows that if the new product is highly profitable compared with the established product, the firm can exploit its brand name by stretching it. However, if the established product is highly profitable compared with the new product, the firm should protect its brand name and not extend it (Cabral 2000). Miklós-Thal (2012) shows that branding may not necessarily signal that the new brand has high quality but could signal a positive correlation between the quality of the parent brand and the new brand. An important feature of all these brand reputation models is that consumers observe not only a firm's actions but also product performance. Moreover, the results of most of these signaling models are contingent on the off-equilibrium beliefs and suffer from multiplicity of equilibria (Moorthy 2012). Also, these signaling models focus on the quality dimension of a product and do not examine how consumers' desire for uniqueness and conformity can affect the branding decisions of firms producing conspicuous goods. We consider the case where product quality is known and evaluate the role of social factors in determining the equilibrium branding decisions. Further, we focus on a competitive situation to highlight the role of market structure in branding decisions.

Our research builds on the empirical literature on brand equity. Brand equity is defined as the value added by a brand name to a product (Farquhar 1989), and it is often measured as the increase in consumer preference that can be attributed to the brand name after controlling for product attributes and marketing mix (Kamakura and Russell 1993, Park and Srinivasan 1994). More recently, researchers have begun to view brand value as the incremental equilibrium profits earned by a branded product compared with the profits earned by the same product but without the brand name (Goldfarb et al. 2009; see also Ailawadi et al. 2003). In the same spirit, in evaluating the value of an umbrella brand, we compare the equilibrium profits from an umbrella branding strategy against the profits from an individual branding strategy. Moreover, we allow the branding decision to endogenously influence consumer demand and firm's pricing. Prior research on brand equity has looked at grocery items such as breakfast cereals, where social effects are not dominant. In contrast to that work, we are interested in conspicuous goods and examine how social effects and market structure affect the profitability of umbrella brands.

A related body of literature is the research on conspicuous consumption. Following the seminal work of Veblen (1899) and Leibenstein (1950), Becker and Murphy (2000) argue that the desire of leaders to distinguish themselves from followers could lead to the introduction of multiple products over time. Research in psychology shows that the desires for uniqueness and conformism are the traits of individual consumers (Ross et al. 1976, Jones 1984). In a market made up of consumers who desire uniqueness and some others who desire conformism, Amaldoss and Jain (2005a) show that the demand from snobs might increase as price increases while the overall demand decreases with price. Focusing on a duopoly, Amaldoss and Jain (2005b) examine whether snobs purchase a high-quality product because of snobbishness or despite it. They show that if the level of snobbishness is sufficiently high, snobs might choose to buy a lower-quality product to distinguish themselves from the followers (even though all consumers prefer

the higher quality). Both these papers consider single-product firms. In contrast to these papers, we consider multiproduct firms and investigate firms' branding strategies.

Our work is also related to the literature that studies how consumers are susceptible to social comparison and, in turn, reference group effects (Bourdieu 1984, Bryson 1996, Lockwood and Kunda 1997, Escalas and Bettman 2005, Berger and Heath 2007). Amaldoss and Jain (2008) examine how reference groups could influence a monopolist's product strategy. They show that offering a limited-edition product leads to increased total sales and a buying frenzy, not reduced sales. Using a different framework, Balachander and Stock (2009) examine the issue of offering limited edition in a competitive setting when firms are asymmetric. They find that the firm with a higher-quality product will benefit from offering a limited edition, whereas the firm with a lower-quality will be hurt by such an introduction. Sun et al. (2011) examine how reference group effects can influence a firm's innovation speed and design. The authors show that a firm's optimal innovation strategy depends on reference group effects and product characteristics. This research, however, does not study firm's branding strategy, which is the focus of our paper.

Another theoretical framework used to study conspicuous consumption is the matching model. Pesendorfer (1995) shows that people can signal their social status to potential dates by adopting the latest designs. Kuksov (2007) shows that brands can play an important role in interpersonal communication when the interests of people are diverse and oral communication is less informative. In these matching models, consumers use their purchase decisions to signal a latent variable, status, which cannot be directly observed. Hence, consumer utility is increased only if a person successfully signals her status. In the behavioral literature, however, social position is observable, and it directly influences utility (e.g., Lockwood and Kunda 1997). Our theoretical framework is very different from these matching models and addresses a different set of issues.

Our research contributes to the marketing literature that enriches standard economic models by incorporating psychological and sociological realism (see, for example, Ho et al. 2006, Cui et al. 2007, Villas-Boas 2009, Chen et al. 2010). We show why our intuitions about branding grounded in packaged goods should not inform branding of conspicuous goods. Indeed, not recognizing the social effects and competition could lead to wrong branding decisions. Our analysis suggests how competing firms can leverage their knowledge about the social context to brand conspicuous goods. Next we introduce our theoretical framework.

3. Model

Consider a market comprising two segments of consumers. Consumers in the first segment prefer a brand that is different from that chosen by consumers in the other segment, and we label the former as snobs. On the other hand, consumers in the second segment like to use the same brand that snobs adopt, and we call these consumers followers. A firm sells two products of different qualities. The high-quality product primarily caters to the snobs, and its marginal cost of production is $c_H > 0$. The firm also offers a low-quality product that is targeted to the followers. The marginal cost of producing the low-quality product is $c_L < c_H$.

3.1. Snobs

Assume that the size of this segment of consumers is 1. Furthermore, snobs have heterogeneous product preferences, and we model this by assuming that consumers are distributed on a unit line with the firms located at 0 and 1. On purchasing a product, consumers could derive some *functional utility* that is intrinsic to the product and some *social utility* that is extrinsic to the product. We assume that snobs value quality highly and that the low-quality product is not acceptable to them because it falls below a minimum acceptable quality. This minimum quality that is acceptable to snobs is grounded in the notions of functional threshold (Adner and Levinthal 2001) and reservation quality (Krishnan and Zhu 2006).[1] Thus, snobs only buy a high-quality product.[2] Later we consider the possibility that some snobs could buy the low-quality product.

If a consumer is located at a distance of θ from firm i, the functional utility derived by this consumer from firm i's product is given by $r_s - \theta t_s$. The parameter r_s denotes the base valuation of snobs for the high-quality product, and t_s represents the sensitivity of snobs to product characteristics (Grossman and Shapiro 1984). We assume that θ is distributed according to a log-concave continuous distribution function $f_s(\cdot)$, with cumulative distribution $F_s(\cdot)$. Several distributions, such as the normal, Weibull, uniform, exponential, and numerous families of beta and gamma distributions, are log-concave. Furthermore, the truncated versions of these distributions

[1] Functional threshold, as defined by Adner and Levinthal (2001), is "the minimum objective performance (independent of price) that a given product must deliver in order for the consumer to consider it" (p. 615). See also Krishnan et al. (1999) for a similar notion of downward substitutability.

[2] This assumption captures the idea that status is often related to income and higher-income individuals may in general have higher taste for quality (see also Rao and Schaefer 2013). In §6.2 we consider a case in which status and quality preferences are not related.

are also log-concave (see, for example, Bagnoli and Bergstrom 2005).

Snobs experience a social disutility if they adopt the same brand that followers use. As in prior literature, we assume that consumers do not form brand associations unless the firm uses an umbrella branding strategy (see, for example, Tadelis 1999, Cabral 2000, Miklós-Thal 2012). Thus, the disutility is experienced only if a firm uses the same brand name (umbrella brand) for the products sold to snobs and followers. In our model, if firm i uses an umbrella brand, then based on the prices charged for the high- and low-quality products, snobs form expectations about the number of followers who are likely to purchase firm i's product. To fix ideas, suppose that snobs expect βy_i^e followers to purchase firm i's product, where β is the size of the follower segment and y_i^e is the expected sales of firm i to followers. Then a snob located at a distance of θ from firm i will be willing to pay $r_s - \theta t_s - \lambda_s \beta y_i^e$ for the firm's product. The term λ_s is a measure of snobbishness, and it reflects the degree to which snobs prefer to consume a brand that is different from the brand that followers use. We assume that λ_s is category specific and remains the same across snobs.

Given the above formulation of functional and social utilities, the overall (indirect) utility that a snob receives on purchasing firm i's high-quality product is given by

$$U_s^i(\theta) = r_s - t_s\theta - \kappa_i \lambda_s \beta y_i^e - p_{iH}, \tag{1}$$

where p_{iH} is the price of firm i's product for snobs and

$$\kappa_i = \begin{cases} 1 & \text{if firm } i \text{ uses an umbrella branding strategy,} \\ 0 & \text{otherwise.} \end{cases} \tag{2}$$

Next we describe the follower segment.[3]

3.2. Followers

Assume that the size of the follower segment is β. The social utility that followers derive from firm i's product is positively influenced by the number of snobs expected to buy the same brand—namely, x_i^e. Thus, the total (indirect) utility that the follower located at θ distance from firm i derives on buying the firm's low-quality product is given by

$$U_f^i(\theta) = r_f - t_f\theta - p_{iL} + \kappa_i \lambda_f x_i^e, \tag{3}$$

where r_f is the base valuation of the followers for the low-quality product, t_f is the sensitivity of followers to product features, p_{iL} is firm i's price for followers, and λ_f captures the desire of followers to use the same brand that snobs adopt. We assume that $t_s \geq t_f$.[4] Note that we do not make any assumption about the relative ordering of λ_s and λ_f; i.e., we allow for the possibility that either of these effects might be stronger. As defined in (2), $\kappa_i = 1$ if firm i uses the same brand name in both segments. We assume that θ is distributed according to a log-concave function $f_f(\cdot)$.

The high-quality product provides additional utility δ_f^H for the followers. To focus on situations in which followers buy the low-quality product that is targeted to them, we assume that $c_H > \delta_f^H + \lambda_f$. This assumption captures the notion that the additional utility provided by the high-quality product is relatively low for the followers, and it is related to the concept of quality saturation proposed by Krishnan and Zhu (2006). The assumption also helps us to focus attention on how social effects affect interbrand competition. Later we relax this assumption by allowing consumers to switch between high-quality and low-quality products. This additional analysis helps us to understand how social effects influence intrafirm switching and, in turn, the branding strategies of firms.

4. Monopoly

We start our analysis by considering a market where there is only one firm. Assume that firm 1 is located at 0 in both segments. First, consider the case when the monopolist uses an individual branding strategy, implying that the firm offers its products under a different brand name for each segment of consumers. In this case, the snob located at θ will buy the high-quality product only if

$$U_s(\theta) = r_s - t_s\theta - p_{1H} \geq 0, \tag{4}$$

where p_{1j} is the price for the product of quality level j with $j \in \{H, L\}$. Similarly, the followers will purchase the firm's low-quality product if

$$U_f(\theta) = r_f - t_f\theta - p_{1L} \geq 0. \tag{5}$$

[3] Note that we are assuming that r_s is not affected by branding decisions. It is possible that umbrella branding could affect the base valuation of the product if it influences perceptions of quality. However, in our model we want to focus on the role of social effects on umbrella branding decisions. Therefore, we assume that the base valuations do not depend on the branding decisions. However, in §6.3 we discuss the case where branding decisions primarily affect the base valuations. We find that in such a scenario, strategic effects are in line with the direct effect. Such a two-stage analysis therefore helps us better delineate the role of social effects in branding decisions.

[4] Note that the coefficient for price in the Hotelling model is 1. This implies that as t increases, consumer's utility is affected more by functional attributes than by price. In the context of our model, $t_s \geq t_f$ implies that snobs are less price sensitive than followers (see also Iyer and Soberman 2000). The assumption is, however, not critical. We only need this assumption for the analysis in §6.1.

Denote the marginal consumer in the snob segment by θ_s and the marginal consumer in the follower segment by θ_f. Then it is easy to see that

$$\theta_s = \min\left(1, \frac{r_s - p_{1H}}{t_s}\right), \tag{6}$$

$$\theta_f = \min\left(1, \frac{r_f - p_{1L}}{t_f}\right). \tag{7}$$

Given the location of the marginal consumers, the firm's profit function is given by

$$\Pi_1 = (p_{1H} - c_H)F_s(\theta_s) + (p_{1L} - c_L)\beta F_f(\theta_f), \tag{8}$$

where c_H is the marginal cost of the high-quality product offered to snobs, and c_L is the corresponding marginal cost of the low-quality product sold to followers. Furthermore, we normalize $c_L = 0$ and set $c_H = c$. Now, the firm's decision problem is to set the optimal prices p^*_{1H} and p^*_{1L}. If the market is fully covered at the optimal price, then $p^*_{1H} = r_s - t_s$. If the market is not fully covered, the optimal price for snobs is implicitly defined by the following equation:

$$p^*_{1H} = c + t_s\frac{F_s(\theta_s)}{f_s(\theta_s)}, \tag{9}$$

where the uniqueness of the price is ensured by the log-concavity of the distribution function. The equation for p^*_{1L} is analogously defined.

Next, we examine the branding decision of the monopolist. To begin with, consider the case when the firm uses umbrella branding. In this case, consumers in each segment need to form expectations about the sales in the other segment. As is common in the literature, we assume that consumers form rational expectations (e.g., Becker 1991, Jerath et al. 2010). If the base valuations r_s and r_f are sufficiently high, then every snob and follower will buy a product irrespective of the branding decision. We focus on fully covered markets, as it enables us to directly compare the results of a monopoly with that of a duopoly and attribute the difference to market structure (rather than market coverage).[5] We have the following result from the monopoly model.

Proposition 1. *If the markets in both segments are fully covered, then the firm prefers to adopt umbrella branding strategy if and only if $\lambda_f > \lambda_s$. Furthermore, the value of using an umbrella brand name is given by $\beta(\lambda_f - \lambda_s)$.*

This result is consistent with our intuition. The negative effect of using an umbrella brand turns out to be high when λ_s is relatively high. Consequently, the monopolist refrains from using umbrella branding in such situations. On the other hand, if the positive externality induced by sales to snobs is high, the firm finds it beneficial to adopt the same brand name for both segments of consumers. Moreover, if the value of umbrella branding is positive, then the size of the follower segment increases the value of the brand name. Upon analyzing a partially covered market, we also find that umbrella branding becomes more attractive when λ_f increases as well as when λ_s decreases. Furthermore, if we assume that $f_s(\cdot)$ and $f_f(\cdot)$ are uniform with range $(0, 1)$, the monopolist will only use umbrella branding if and only if $\lambda_f > \lambda_s$. This is consistent with our results for the fully covered case.[6] Next, we explore the effect of competition on a firm's branding strategy.

5. Duopoly

Let two firms sell their products to snobs and followers. We assume that firm 1 is located at one end of the Hotelling line at 0 and firm 2 is located at the other end at 1. Assume that both segments are fully covered so that there is competition between the two firms.[7] We first examine the snob segment. The (indirect) utility derived from firm 1's product by a snob located at θ is given by (1). The corresponding utility from firm 2's product is given by

$$U^2_s = r_s - t_s(1 - \theta) - \kappa_2\lambda_s\beta y^e_2 - p_{2H}, \tag{10}$$

where κ_2 is as defined in (2) and y^e_2 is the expected number of followers who will purchase the same brand. The snob at θ_s who is indifferent between buying from firm 1 and firm 2 is given by

$$\theta_s = \frac{(p_{2H} - p_{1H}) + t_s + \kappa_2\beta\lambda_s(1 - y^e_1) - \kappa_1\beta\lambda_s y^e_1}{2t_s}. \tag{11}$$

Similarly, the follower who is indifferent between firm 1's product and firm 2's product in the follower market is indexed by θ_f. We have

$$\theta_f = \frac{(p_{2L} - p_{1L}) + t_f + \kappa_1\lambda_f x^e_1 - \kappa_2\lambda_f(1 - x^e_1)}{2t_f}, \tag{12}$$

where we use the fact that $y^e_2 = 1 - y^e_1$ and $x^e_2 = 1 - x^e_1$, since the market is fully covered. Denote firm 1's sales

[5] If we allow the market to be partially covered in the case of a monopoly but fully covered in a duopoly, it will be difficult to disentangle the effect of market coverage from that of competition. By keeping market coverage constant, we can directly see how allowing competition affects equilibrium branding strategies. Note that if the reservation prices for the two segments are high enough, the monopolist will set prices such that the market is fully covered.

[6] A detailed proof for this case is available in the online appendix (available as supplemental material at http://dx.doi.org/10.1287/mnsc.2014.2078).

[7] We have also numerically analyzed the case when the market is not fully covered. In particular, we considered a case where some consumers can choose not to buy. Our results show that the basic intuition of our model continues to hold in such a formulation.

to snobs by x_1 and the sales to followers by y_1. These demands are given by

$$x_1 = F_s(\theta_s), \tag{13}$$

$$y_1 = F_f(\theta_f). \tag{14}$$

We further assume that $f_k(\cdot)$ with $k \in \{s, f\}$ is symmetric around $\frac{1}{2}$, implying that $f_k(x + \frac{1}{2}) = f_k(\frac{1}{2} - x)$ $\forall x \in (0, \frac{1}{2})$. This assumption allows us to consider symmetric firms while still allowing for a fairly general distribution.[8] It follows from (11) and (12) that the right-hand side of Equations (13) and (14) depend on sales expectations: x_1^e and y_1^e. As in prior literature, we assume that consumers form rational expectations. Then using Equations (13) and (14), we obtain a rational expectations equilibrium in which sales x_1 and y_1 depend on the prices: p_{1H}, p_{2H}, p_{1L}, and p_{2L}. In the online appendix, we prove that there exists a rational expectations equilibrium for this game.

With this setup, we proceed to consider the branding decision. The sequence of decisions taken by the duopolists is as follows. First, each firm independently decides whether to pursue an umbrella branding strategy or an individual branding strategy. After observing the branding decisions, each firm independently decides on the prices of its product for each segment of consumers. This sequence of decisions reflects the fact that it is far easier to change prices than branding decisions. To understand equilibrium behavior, we solve backwards by first analyzing the pricing subgame and then the branding game. Below, we discuss the profit implications of symmetric individual branding, symmetric umbrella branding, and finally asymmetric branding, where only one firm uses umbrella branding.

5.1. Both Firms Use Individual Branding for the Two Segments

In the symmetric individual branding case, social effects do not influence the prices. Hence the price charged for one segment is independent of the price in the other segment. As $\kappa_1 = \kappa_2 = 0$ in this case, the profits of firm 1 are given by

$$\Pi_1(0, 0) = (p_{1H} - c)F_s(\theta_s) + p_{1L}\beta F_f(\theta_f). \tag{15}$$

Using the first-order conditions and symmetry, we have

$$p_{1H}^* = c + \frac{t_s}{f_s(\frac{1}{2})}, \tag{16}$$

$$p_{1L}^* = \frac{t_f}{f_f(\frac{1}{2})}. \tag{17}$$

[8] The assumption, however, rules out certain log-concave distributions, such as exponential and gamma distributions, which are inherently asymmetric.

The profits in this case are given by

$$\Pi_1^*(0, 0) = \frac{t_s}{2f_s(\frac{1}{2})} + \frac{\beta t_f}{2f_f(\frac{1}{2})}. \tag{18}$$

5.2. Both Firms Use Umbrella Branding

In the symmetric umbrella branding case, $\kappa_1 = \kappa_2 = 1$. In contrast to the symmetric individual branding case, now the demand from snobs depends not only on the prices of the products they buy but also on the prices charged to followers. Similarly, the demand from followers depends on the prices charged to followers as well as snobs. Thus, the prices set by firms for both segments impact the composition of consumers who adopt a particular brand. This affects how valuable a consumer finds the brand and, in turn, the equilibrium prices and profits.

Then using the first-order conditions and noting that the firms are symmetric, we obtain

$$p_{1H}^* = c + \frac{t_s - \beta\lambda_f f_s(\frac{1}{2})}{f_s(\frac{1}{2})}, \tag{19}$$

$$p_{1L}^* = \frac{t_f + \lambda_s f_f(\frac{1}{2})}{f_f(\frac{1}{2})}. \tag{20}$$

Detailed derivations are presented in the online appendix. Note that relative to the individual branding case, umbrella branding increases the prices of the low-quality product that followers purchase but decreases the price of the high-quality product that snobs buy. Interestingly, the decrease in the price of the high-quality product does not depend on the level of snobbishness (λ_s) but varies with the strength of the follower effect (λ_f). Similarly, the increase in the price of low-quality product does not depend on λ_f but rather on λ_s. This implies that

$$\Pi_1^*(1, 1) = \left[\frac{t_s}{2f_s} + \frac{\beta t_f}{2f_f}\right] + \frac{\beta(\lambda_s - \lambda_f)}{2}. \tag{21}$$

On comparing (18) and (21), we have the following result.

Proposition 2. *Both firms earn more profits on adopting an umbrella branding strategy instead of an individual branding strategy if and only if $\lambda_s > \lambda_f$. Furthermore, the value of an umbrella branding strategy is given by $\beta(\lambda_s - \lambda_f)$.*

It is interesting to note that this result is in direct contrast to the results of the monopoly model. This finding shows that firms are better off using umbrella branding when snobbishness is higher. To understand the intuition for this result, note that using an umbrella branding strategy induces two effects. The first one is a direct effect. Specifically, an umbrella brand reduces the attractiveness of the product for

snobs but makes the product more attractive to followers. In a monopoly, this direct effect favors the use of umbrella branding for low values of λ_s and for high values of λ_f. In a duopoly, however, the direct effect is zero. To see why, notice that in a symmetric equilibrium both firms equally share the snob and the follower markets, and the effect of λ_s and λ_f on the reservation prices of snobs and followers is the same for both firms. Consequently, the direct effect of branding on equilibrium prices and profits is zero in a duopoly.

The second effect of branding is an indirect one, and it is a consequence of the strategic interaction between competing firms. Because the direct effect of branding is zero in a duopoly, the indirect (strategic) effect determines the overall effect of branding (see also Cabral and Villas-Boas 2005). Note that the branding strategy of a duopolist indirectly influences the nature of price competition in the market. As we can see in (19) and (20), an increase in λ_f decreases the prices in the snob market but not the prices in the follower market. To understand the rationale, notice that an increase in λ_f makes it attractive for firms to gain a higher share of the snob market and leverage the market share to sell to more followers. This intensifies price competition and lowers the prices of products sold to snobs. Next, it is evident from (20) that the prices in the follower market rise as λ_s increases. This happens because as the size of λ_s increases, it becomes less attractive to sell to followers. Consequently, price competition reduces and prices of the products sold to followers rise as λ_s increases. As the strategic effect dominates the direct effect of branding in a duopoly, the overall effect of branding is positive when λ_s is larger than λ_f but turns negative when $\lambda_f > \lambda_s$.

It is useful to notice that the size of the follower segment does not affect the direction of branding strategy's effect on profits but only affects its magnitude. Moreover, we have conservatively assumed that the cost of the low-quality product is the same under both branding strategies, so the relative profitability of a branding strategy is due to social effects rather than costs. It is possible that individual branding may be more costly than umbrella branding; this would make umbrella branding even more profitable in a competitive context.

5.3. Firm 1 Uses Umbrella Branding While Firm 2 Uses Individual Branding

In this asymmetric branding case, let $\kappa_1 = 1$ and $\kappa_2 = 0$. Define ℓ_{10} as the value of using umbrella branding when the other firm is using individual branding. Similarly, let ℓ_{11} be the value of using umbrella branding when the other firm is also using umbrella branding. We can assess these values as usual by first solving for equilibrium prices, assuming that consumers' expectations are fulfilled in equilibrium. We have the following result on asymmetric branding.

Proposition 3. *For small λ_f and λ_s,*

(a) *an increase in λ_s increases the value of ℓ_{10} and ℓ_{11}, and*

(b) *an increase in λ_f decreases the value of ℓ_{10} and ℓ_{11}.*

This proposition is valid for a general distribution as long as the social effects are not too large. Note that these results are opposite to that observed in a monopoly. This is because the (indirect) strategic effect of the social forces dominates the direct effect in a duopoly. Hence, an increase in λ_s softens price competition, whereas an increase in λ_f intensifies price competition.

To proceed with the analysis for larger values of social effects and to study equilibrium branding decisions, we need to impose additional conditions. In particular, we assume that $f(\cdot)$ is uniform. Furthermore, to ensure that interior solutions exist, we assume that $\lambda_j \le 1$, $t_j \ge 1$, and $\beta\lambda_j \le t_j$, where $j = \{s, f\}$. With this setup, we can investigate the equilibrium branding decisions. The following proposition summarizes the result.

Proposition 4. *The equilibrium branding decision is as follows*:

(a) *Both firms pursue umbrella branding if $\lambda_s > \lambda_f$.*

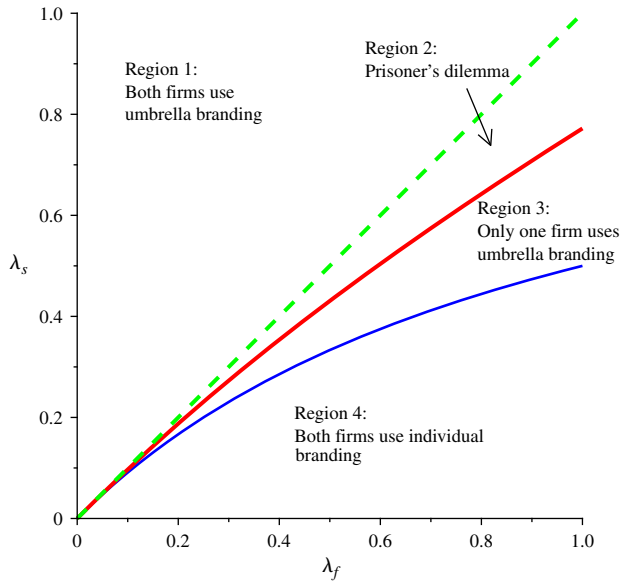
(b) *Firms face a prisoner's dilemma and umbrella brand their products even though they would be better off using individual branding when $\lambda_s \in (\lambda_s^{**}, \lambda_f)$, where λ_s^{**} is a function of λ_f and $\lambda_s^{**}(\lambda_f) < \lambda_f$. Furthermore, $\partial\lambda_s^{**}/\partial\lambda_f > 0$.*

(c) *One firm uses umbrella branding and the other firm uses individual branding when $\lambda_s \in (\lambda_s^{*}, \lambda_s^{**})$, where $\partial\lambda_s^{*}/\partial\lambda_f > 0$.*

(d) *Both firms adopt individual branding if $\lambda_s < \lambda_s^{*}$.*

Figure 1 presents the four regions in which we could observe the four different equilibria highlighted in the proposition. Recall that an increase in snobbishness makes it more attractive for competing firms to use umbrella branding. Conversely, an increase in λ_f decreases the incentive to use umbrella branding strategy. The first part of the proposition shows that if λ_s is sufficiently large then both firms will use umbrella branding (see region 1). The proposition also shows that a sufficient but not necessary condition for this to hold is that $\lambda_s > \lambda_f$. In this region, umbrella branding yields higher profits than individual branding. This is consistent with our result in Proposition 2. As can be seen in Figure 1, the critical λ_s^{**} for which the equilibrium entails an umbrella branding strategy increases as λ_f increases. To understand why, note that that λ_s and λ_f work in opposite

Figure 1 **(Color online) Equilibrium Branding Strategy** $(t_f = t_s = \beta = 1)$



directions in determining the optimal branding strategy. An increase in snobbishness decreases price competition, whereas an increase in conformism increases price competition. Therefore, when λ_f increases we need an offsetting increase in λ_s to obtain umbrella branding as the equilibrium strategy. As noted earlier, BMW and Mercedes are using an umbrella branding strategy to sell their low-end cars. This practice may go against the social desires of people who own their high-end cars. For example, one may wonder whether a chief executive can find happiness in his $100,000 S-Class Mercedes when he knows his secretary drives the C230 (see Flint 2002). Our analysis provides an interesting potential explanation for this seemingly anomalous firm behavior: umbrella branding can soften price competition for the low-end cars and improve the overall profits of competing firms.[9]

In region 2, we observe umbrella branding even when $\lambda_s < \lambda_f$ (see Figure 1). Interestingly, in this region both firms would be better off if they could commit to individual branding. However, absent an ability to make such a commitment, firms face a prisoner's dilemma, and both firms end up pursuing umbrella branding. For a concrete example, consider the case when $t_s = t_f = \beta = 1$ and $\lambda_s = 0.7, \lambda_f = 0.8$. Because $\lambda_s < \lambda_f$, both firms would be better off if they could commit to using individual branding. Specifically, the profits from both using individual branding are 1 as opposed to 0.95 from umbrella branding. Then why do the firms adopt umbrella branding? To see this, note that if firm 1 deviates from individual branding and offers an umbrella brand, it can charge a higher price for the follower segment and also charge a slightly lower price for the snobs. On one hand, this move helps firm 2 by softening price competition in the follower segment. On the other hand, it intensifies price competition in the snob segment, and the overall profits of firm 2 decline to 0.94. As such, firm 2 also adopts umbrella branding. More generally, in region 2, as $\lambda_s < \lambda_f$, the overall impact of price competition is more intense under umbrella branding. Further, because firms cannot coordinate their branding decisions, we observe umbrella branding. Thus, competitive force increases the region in which we observe umbrella branding.[10]

In region 3, we have $\lambda_f > \lambda_s$ (see Figure 1). For example, consider the case when $\lambda_s = 0.7$ and $\lambda_f = 0.95$. As before, in this case, one of the firms (say, firm 1) finds it beneficial to deviate and use an umbrella brand. On one hand, this hurts firm 2 because it loses market share in the follower segment and faces more intense price competition in the snob segment. But firm 2 still benefits from decreased price competition in the follower segment. In contrast to region 2, in region 3 the relative size of λ_f is larger; this makes price competition more intense if firm 2 also uses umbrella branding. Consequently, firm 2 does not deviate to offering umbrella brand as it will only intensify price competition. Thus in this region, symmetric firms choose asymmetric branding strategies and make different profits. The firm that offers umbrella branding makes higher profits, whereas the other firm makes lower profits.

Finally, note that λ_s is much lower than λ_f in region 4. In this region, the increased competition in the snob segment is such that it is not profitable for any firm to deviate and adopt umbrella branding. Thus, for low values of λ_s or high values of λ_f, both firms use an individual branding strategy.[11]

Taken together, Propositions 1 and 4 emphasize an important point: examining a firm's optimal branding strategies without considering its competition can lead us to make wrong strategic decisions.

[9] Similarly, Rolex and Patek Philippe sell their entire line of watches (including low-end products) using an umbrella branding strategy. Likewise, Hermès and Prada sell a wide range of fashion goods using their umbrella brand. Such a strategy could help reduce the price competition for their low-end products.

[10] This result provides one potential explanation for the widespread use of umbrella branding in luxury goods. Although intuition might suggest that exclusivity concerns would dissuade firms to adopt umbrella branding, our results show that in a competitive context, umbrella branding occurs for a large range of parameters.

[11] LVMH Moët Hennessy Louis Vuitton sells its wide range of fashion and leather goods under 13 different brands such as Louis Vuitton, Céline, Fendi, Loewe, Kenzo, Givenchy, Berluti, Marc Jacobs, Emilio Pucci, Thomas Pink, Edun, NOWNESS, and Donna Karan. Perhaps LMVH's individual branding strategy helps it to soften the price competition for the high-end products sold under the Louis Vuitton brand.

6. Model Extensions

In developing our model, we made a few simplifying assumptions to clarify how social factors influence the branding of conspicuous goods. Next, we relax some of these assumptions to assess the robustness of our findings and capture additional features of the market for conspicuous goods. Given that the original model is already sufficiently complex, we relax one assumption at a time to keep the model tractable to the extent possible. *First*, our original model allows for interfirm competition but does not permit competition within a firm's product line. We relax this assumption in two steps. To begin with, consider a simple setting where some consumers might buy the high-quality product when the firm uses individual branding. However, if the firm adopts umbrella branding and uses the same brand name for its low-quality and cheaper product, these consumers switch to buying the low-quality product. Thus, in such a setting social effects influence some consumer's choices at the category level. Intuition would suggest that the presence of such consumers would deter firms from adopting umbrella branding. We probe this issue in an extension. Next, consider a more complex setting where a small fraction of snobs switch to purchasing the low-end product when the firms uses an umbrella brand. These snobs are primarily interested in the exclusivity that buying a high-end brand provides. When the firm uses umbrella branding, this exclusivity is lost, and these consumers therefore switch down. To further assess the robustness of our finding about the relative profitability of umbrella branding, we also allow for switching by both snobs and followers. *Second*, our original model assumes that product preference is related to social status. That is, snobs prefer the high-quality product whereas followers prefer the low-quality product. This prompts the question: What would happen if product preference is not related to social status at all? Upon extending the model to consider such a situation, we find that if snobbishness is above a threshold, competing firms earn more profits by using an umbrella branding strategy (rather than an individual branding strategy). *Third*, notice that a brand can improve its perceived quality through brand associations devoid of social influences. Another extension considers such a model, and it helps us to better understand the role of social interaction in our original model.

6.1. A Model of Intrafirm Switching and Interfirm Competition

We start our analysis of intrafirm switching by first considering a simple model and then extend the model to consider additional complexities. To begin with, we capture the idea of intrafirm switching by allowing the follower segment to be composed of two subgroups. Let α proportion of followers have a high follower effect where $\lambda_f^h = \lambda_f + \Lambda$, with Λ being sufficiently large so that these consumers could sometimes switch to the high-quality product. The remaining $(1-\alpha)$ have a lower level of follower effect, where $\lambda_f^l = \lambda_f$. It is useful to note that in our original model, $\alpha = 0$. In this simple model, $\alpha\beta$ proportion of consumers could potentially switch to buying the high-quality product. If a firm uses an umbrella brand, followers with a high social effect receive the incremental social benefit Λ even if they buy the low-quality product. Because these followers do not place a substantial value on quality, they prefer to buy the low-quality product.[12] On the other hand, if the firm pursues an individual branding strategy, these followers can get the additional social benefit Λ only if they buy the high-quality product. Hence, when Λ is large, $\alpha\beta$ proportion of consumers would buy the high-quality product if the firm uses individual branding but buy the low-quality product if the firm were to use umbrella branding. In addition to interfirm competition, we now have intrafirm switching.

6.1.1. Monopoly. In considering the monopoly model, we focus on a fully covered market to facilitate exposition. If the firm uses individual branding and some followers switch to the high-quality brand, the profits that the firm earns are given by

$$\Pi(0) = (1+\alpha\beta)\big[\min(r_s - t_s - \lambda_s\alpha\beta,\, r_f + \delta_f^H - t_f + \lambda_f + \Lambda) - c\big] + \beta(1-\alpha)(r_f - t_f). \quad (22)$$

To focus on the impact of social effects on switching choices, we set $\delta_f^H = 0$. In other words, we assume that followers do not care about the quality of the high-end product and switch only because of the social effects. If the firm uses umbrella branding, then the profits are given by

$$\Pi(1) = (r_s - t_s - \lambda_s - c) + \beta(r_f - t_f + \lambda_f). \quad (23)$$

It is reasonable to assume that the margins from the high-end products are typically higher than the

[12] Note that we are assuming that the social utility from buying the high-quality and the low-quality product is the same. For example, we assume that the *social benefit* to a follower from owning a BMW 1 Series or BMW 7 Series is the same. This assumption, however, does not imply that the follower receives the same functional utility from consumption of these products because the higher-quality product gives higher base utility. Our assumption is intended to reflect the fact that consumers receive social utility when a brand is associated with a certain group, and the social utility is different from the *functional* utility derived from the product. If we were to allow the social effects to be a function of the quality of a product, then it would affect the results only when the segment of followers who are willing to switch up do so regardless of the branding decision of the firm. Thus, if branding decisions affect intrafirm switching, then our results continue to hold.

low-end brands. In such a case, when some followers move up to the high-end brand under an individual brand, such a strategy becomes more attractive. Thus, it is easy to see that umbrella branding becomes (weakly) less attractive as α increases. Thus the presence of consumers who are willing to buy the high-quality product only if the firm uses individual branding encourages a monopolist to adopt individual branding. This result is consistent with intuition. Next we explore whether in the presence of competition a firm will choose to adopt umbrella branding instead of individual branding (as highlighted in Proposition 2).

6.1.2. Duopoly. To understand the effect of competition, we compare two symmetric cases: one where both the symmetric firms adopt umbrella branding and the other where both firms use individual branding. For simplicity, we assume that $f_s(\cdot) = f_f(\cdot) = f(\cdot)$. The base case analyzed in §5.2 where both the firms offer umbrella branding is applicable to this context as well, and hence the profits are

$$\Pi_1^*(1,1) = \frac{t_s + \beta t_f + \beta(\lambda_s - \lambda_f) f(\frac{1}{2})}{2f(\frac{1}{2})}. \tag{24}$$

Next, consider the case when both firms offer individual branding. In contrast to the base case, now some followers could choose to buy the high-quality product because of intrafirm switching. In particular, $\alpha\beta$ proportion of consumers will switch to buying the high-quality product. The utility that a snob at θ receives from buying firm 1's product is given by

$$U_s^1 = r_s - t_s\theta - p_{1H} - \lambda_s \alpha\beta y_1^e, \tag{25}$$

where $\alpha\beta y_1^e$ is the expected number of followers who are likely to buy the high-quality product of firm 1. The utility for firm 2's product is analogously defined.

Shifting attention to followers, note that some followers experience a high social effect, λ_h. Recall that in our original model we have analyzed the case where all the followers could only buy the low-quality product. Hence, we focus on the case where Λ is high enough that a fraction of the followers could buy the high-quality product. The consumer at θ who is considering buying the high-quality product of firm 1 gets the following utility:

$$U_{fh}^1 = r_f - \theta t_f - p_{1H} + (\lambda_f + \Lambda) x_1^e, \tag{26}$$

where x_1^e is the number of snobs who are expected to buy the high-quality product of firm 1.

On solving for the Nash equilibrium prices, we obtain

$$p_{1H}^* = c + \frac{(1+\alpha\beta)(\alpha\beta\lambda_s(\lambda_f + \Lambda) f^2(\frac{1}{2}) + t_s t_f)}{f(\frac{1}{2})(t_f + \alpha\beta(t_s + \lambda_f + \Lambda - \lambda_s))}, \tag{27}$$

$$p_{1L}^* = \frac{t_f}{f(\frac{1}{2})}. \tag{28}$$

The detailed derivations are presented in the online appendix.

To understand how a consumer's tendency to switch affects a firm's branding strategy, we make some additional assumptions. We assume that $f(\cdot)$ is uniform with a range $(0, 1)$, $\beta = 1$, and $t_s \geq 1$. Furthermore, to ensure that the high-end product has higher margins, we assume that $t_s - t_f > \lambda_f + \Lambda$. On examining the symmetric equilibrium, we have the following result.

Proposition 5. *Both firms earn more profits on using an umbrella branding strategy when $\lambda_f < \lambda_f^*$. Furthermore, for small λ_s, λ_f^* is increasing in α and decreasing in t_f.*

This proposition is analogous to Proposition 2 and shows that the follower effect in a competitive setting works opposite to the way it works in a monopoly setting. In a monopoly, a firm prefers to use umbrella branding when the follower effect is high. On the contrary, a duopolist finds umbrella branding more profitable than individual branding if follower effect is low. Moreover, an increase in the number of switchers makes umbrella branding more profitable if snobbishness is also low. To understand the intuition for this finding, note that because some followers can be motivated to switch to buying high-quality products, firms compete for these consumers. In an attempt to increase the social appeal of its high-quality product to these intrafirm switchers, each firm decreases the price of its high-quality product so that more snobs buy the product. This, in turn, intensifies price competition and reduces profits if both firms use individual branding. The parameter α, however, does not affect the profits from umbrella branding. Thus, an increase in α increases the relative attractiveness of umbrella branding strategy.

The second part of the proposition shows that if t_f decreases, the threshold λ_f^* at which competing firms find umbrella branding more profitable grows in size. To follow the rationale for this result, first note that the composition of consumers interested in buying a firm's high-quality product changes if some followers can switch to buying the high-quality product. As $t_f < t_s$, followers are more price sensitive; they become even more price sensitive when t_f decreases. This increases price competition if competing firms use individual branding but does not affect the profits from umbrella branding. Thus, as t_f decreases, both firms find it more profitable to use umbrella branding.

In an attempt to further assess the robustness of Proposition 5, we relax two of its underlying assumptions. To begin with, notice that the second part of the proposition is derived under the condition that the snob effect (λ_s) is small. This condition may prompt the question, what would happen when the

snob effect is large? With a larger snob effect, more forces come into play in shaping a firm's branding strategy. First, recall that λ_f intensifies price competition under individual branding, because more followers find switching to the high-quality product more attractive. The increased price competition, as we discussed before, encourages firms to adopt umbrella branding to soften price competition. Second, notice that when $t_f < t_s$, followers are more price sensitive. As some of these price-sensitive followers are now open to buying the high-quality product under individual branding, the price of the high-quality product under individual branding will be depressed. This is the effect discussed in the second part of Proposition 5. Third, note that a firm could potentially earn higher margins from followers who switch to buying the high-quality product. Proposition 5 shows that, although this positive effect is strong in a monopoly, it is dominated by the preceding two negative effects in a duopoly when $\lambda_s = 0$. Hence umbrella branding is more profitable for a duopolist when the proportion of switchers in the follower segment increases. However, if $\lambda_s > 0$, we could observe an interesting reversal in this result. Recall that λ_s decreases the price competition that firms face in the follower segment. Consequently, when λ_s is sufficiently large, individual branding becomes more attractive as α increases. To see this, consider the case when $t_s = 2$, $t_f = 1$, and $\lambda_f = 0$. Now, if $\lambda_s \to 1$, then for all $\alpha > (\sqrt{7}-1)/3$, an increase in α makes individual branding more attractive. We establish this result in the online appendix.

The second assumption underlying Proposition 5 is that some followers could switch to buying the high-quality product, whereas snobs cannot switch to buying the low-quality product. This could raise the question, what would happen if some proportion of snobs as well as followers could switch to buying the product not intended for them? To let snobs trade down, let α proportion of snobs have a high level of snobbishness where $\lambda_s^h = \lambda_s + \Lambda$ so that they could sometimes switch to low-quality products. The remaining $(1-\alpha)$ proportion of snobs are less snobbish in that $\lambda_s^l = \lambda_s$. On analyzing this more complex setting, we obtain results consistent with Proposition 5. Further details of this analysis can be seen in the online appendix.

6.2. Product Preference Is Not Related to Social Status

In our original model, we assumed that snobs prefer high-end products, whereas followers prefer low-end products. Now consider two product categories where competing firms offer horizontally differentiated products. Furthermore, assume that one-half of the snobs buy the products in one category and the other half purchase the products in the second category. Similarly, half of the followers purchase in one product category whereas the other half purchase in the second product category. Thus, in this extension, product preference is not related to social status. To clearly understand the role of social effects, focus attention on the case where the four segments are symmetric, implying that $\beta = 1$, $t_s = t_f = t$, and $c = 0$.

6.2.1. Monopoly. For simplicity, let us consider the case when the market is fully covered. In this case, if a firm uses individual branding, then its profits are $2(v-t)$. However, if the firm uses umbrella branding, the profits from the snob segments are $(v - t - \lambda_s)$, whereas the profits from the follower segments are $(v - t + \lambda_f)$. Therefore, the total profits from umbrella branding are $(2(v-t)+(\lambda_f - \lambda_s))$. This implies that the monopolist will use umbrella branding if and only if $\lambda_s < \lambda_f$. This finding is consistent with our results in the base model.

6.2.2. Duopoly. First, consider the case when both firms use individual branding. The utility that a follower in segment 1 at θ_{f1} derives from buying from firm 1 is

$$U_1^f = r - p_{11} - t\theta_{f1} + \lambda_f \frac{x_s^e}{2}, \tag{29}$$

where p_{11} is firm 1's price in the first market and x_s^e is the market share for firm 1 among snobs in market 1. Note that we divide x_s^e by two since the total number of snobs in the first market is $\frac{1}{2}$.

The corresponding utility for the follower from purchasing brand 1 is

$$U_2^f = r - p_{21} - t(1-\theta_{f1}) + \lambda_f \frac{1 - x_s^e}{2}. \tag{30}$$

We assume that θ is distributed uniformly in the interval $(0, 1)$. Next, consider the case when both firms use umbrella branding. The utility that a follower in segment 1 at θ_{f1} derives from buying from firm 1 is

$$U_1^f = r - p_{11} - t\theta_{f1} + \lambda_f \frac{x_s^e + y_s^e}{2}, \tag{31}$$

where p_{11} is firm 1's price in the first market, and x_s^e is the market share for firm 1 among snobs in market 1 and y_s^e is the market share for firm 1 among snobs in market 2. The corresponding utility for the follower from purchasing brand 1 is

$$U_2^f = r - p_{21} - t(1-\theta_{f1}) + \lambda_f \frac{2 - x_s^e - ys^e}{2}. \tag{32}$$

Denote the equilibrium prices under individual branding by $p^I(\lambda_s, \lambda_f)$ and those under umbrella branding by $p^U(\lambda_s, \lambda_f)$. On solving for the equilibrium prices, we find that

$$p^I(\lambda_s, \lambda_f) = p^U\left(\frac{\lambda_s}{2}, \frac{\lambda_f}{2}\right). \tag{33}$$

This result has an intuitive appeal: Umbrella branding doubles the social effects in the sense that snobs now care about followers buying the umbrella brand not only in their product category but also in the other product category. Similarly, the followers care about the snobs in both segments under umbrella branding. In equilibrium, the incremental profitability of using umbrella branding instead of individual branding is given by

$$\Delta = p^U(\lambda_s, \lambda_f) - p^U\left(\frac{\lambda_s}{2}, \frac{\lambda_f}{2}\right). \quad (34)$$

This is equivalent to

$$\Delta = \int_{\lambda_f/2}^{\lambda_f} \frac{\partial p^U(\lambda_s, y)}{\partial y}\, dy + \int_{\lambda_s/2}^{\lambda_s} \frac{\partial p^U(x, \lambda_f/2)}{\partial x}\, dx. \quad (35)$$

As before, prices decline with λ_f and increase in λ_s. Thus, if λ_s is small, then $\Delta < 0$ because prices decline as λ_f increases. Furthermore, if λ_f is small, then $\Delta > 0$. These results are consistent with our earlier results.

Next note that

$$\frac{\partial \Delta}{\partial \lambda_s} = \int_{\lambda_f/2}^{\lambda_f} \frac{\partial^2 p^U(\lambda_s, y)}{\partial \lambda_s \partial y}\, dy + \left[\frac{\partial}{\partial \lambda_s} p^U\left(\lambda_s, \frac{\lambda_f}{2}\right) - \frac{1}{2}\frac{\partial}{\partial \lambda_s} p^U\left(\frac{\lambda_s}{2}, \frac{\lambda_f}{2}\right)\right]. \quad (36)$$

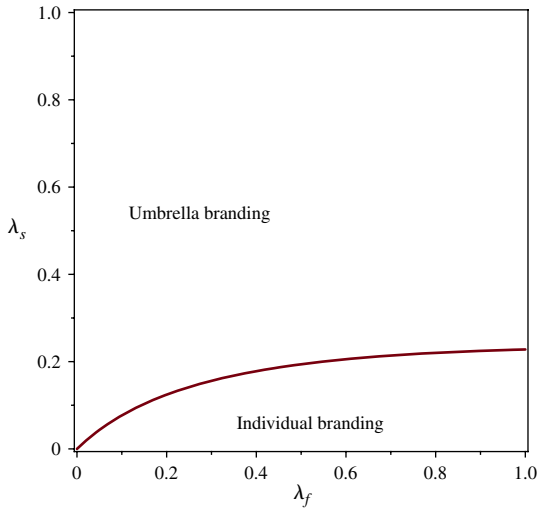
It turns out that equilibrium prices are increasing and convex in λ_s, implying that the second term in brackets in Equation (36) is positive. Moreover, the cross derivatives are positive, suggesting that the first term is positive. Together, these two effects suggest that umbrella branding becomes more profitable as λ_s increases. On comparing the profits in the symmetric equilibrium where both firms adopt umbrella branding with that where both firms pursue individual branding, we have the following result.

Proposition 6. *If $\lambda_s > \lambda_s^*(\lambda_f)$, an umbrella branding strategy yields more profits than an individual branding strategy.*

Figure 2 shows the equilibrium branding strategy for the case when $t = 1$.[13] It is interesting to note that umbrella branding can be beneficial even when $\lambda_f > \lambda_s$. To understand this result, note that λ_s reduces price competition whereas λ_f tends to intensify price competition. However, since the cross derivatives are positive, an increase in λ_s reduces the negative impact of λ_f on firms' profits. However, because social effects have a bigger impact under umbrella branding, it turns out that λ_s mitigates the negative effect of λ_f more in the umbrella branding case than in the individual branding case. Consequently, umbrella branding is adopted by firms over a larger region, as shown in Figure 2.

[13] For $t = 1$, there are no asymmetric equilibrium strategies, and if we use the Pareto-dominance criterion to select equilibrium, then the cutoff used in Proposition 6 also defines the market equilibrium.

Figure 2 **(Color online) Markets Are Symmetric** ($t = 1$)



6.3. A Product-Based Model of Brand Equity

To further understand the significance of the social interaction captured in our model, it is useful to compare our customer-based model to an alternative model in which the effects of branding are driven by mere product associations. For example, if BMW uses the same name for its low-end cars, then it is possible that the brand image of its high-end cars transfers to the low-end ones. Conversely, if Toyota tries to enter into the luxury market, then the image of the car it sells in the luxury market may be hurt by its association with the lower-end product. In other words, in this alternative formulation, brand equity is related to product/brand image associations, not to the size and composition of its customer base. This can be captured in a model by assuming that such associations affect the reservation price by a fixed positive or negative amount. This formulation is consistent with the empirical literature on brand equity (e.g., Kamakura and Russell 1993, Sriram et al. 2007; see also Srinivasan 1979). In these empirical models, the brand-specific intercept in a consumer's utility is a measure of brand equity.

To fix ideas, consider two symmetric firms that are serving the snob market. If these firms enter the follower market using an umbrella branding strategy, the (indirect) utility that a follower located at θ derives from the product of firm i is given by

$$U_f^i = r_f + \delta - t_f\theta - p_{iL}, \quad (37)$$

where $\delta > 0$ is the positive brand association effect induced by the umbrella brand. The effect is positive

because of the favorable associations with the high-end market.

Conversely, if the firms are serving the follower market and choose to enter the snob market with the same brand name, then the utility that a consumer in the snob market located at θ derives from buying firm i's product is

$$U_s^i = r_s + \delta - t_s\theta - p_{iH}, \tag{38}$$

where $\delta < 0$ represents the reduction in utility caused by negative brand association effect. Thus, in both cases the effect of branding strategy can be captured by a parameter δ. On analyzing this product-based model of brand equity, we have the following result.

Proposition 7. *If the utility from consumption of an umbrella-branded product is only affected by the brand associations with the parent brand, then both firms use umbrella branding when brand association effect is positive but use individual branding when brand association effect is negative.*

In this product-based formulation, an increase in utility because of positive associations makes it attractive for firms to use umbrella branding. On the other hand, a decrease in perceived value because of negative associations makes it profitable for firms to use individual branding. This finding is consistent with the results of the monopoly model but opposite to those obtained in the duopoly model with social effects. To understand the intuition behind this result, note that the size of δ does not depend on the number of consumers who buy a product in either market.[14] Unlike our customer-based formulation, this alternative formulation is devoid of any (indirect) strategic effect induced by the social factors. Thus, competition neither enhances nor softens because of the branding decision. Consequently, when the direct impact of umbrella branding is positive, firms prefer to use umbrella brands. Thus in contexts where we believe that consumer response to an umbrella brand is sensitive to the number of consumers buying the brand, this product-based formulation may miss out on the (indirect) strategic effect of a firm's branding strategy on its profits. Furthermore, it could lead to branding recommendations that are entirely different from those of a customer-based model of branding.

[14] It is possible that an entry into a lower-tier market with the same brand name could hurt consumer perceptions in the higher-tier market. Thus umbrella branding could induce a positive externality among followers but create a negative externality among snobs. Upon considering such a formulation where positive and negative externalities coexist in the market, we obtain results similar to those in Proposition 7.

7. Conclusion

Consumers purchase conspicuous goods to satisfy not just their functional needs but also their social needs. The goal of this paper is to investigate how social effects and competition might influence the branding of conspicuous goods. To this end, we propose a game-theoretic model that captures some common social desires of consumers and analyze its implications for the branding of conspicuous goods in a competitive market. Our theoretical investigation offers a few useful insights on branding conspicuous goods.

- *Will low-end consumers' desire to follow encourage a firm to use umbrella branding?* One could argue that if low-end consumers' desire to emulate the choices of the high-end consumers increases, a firm should adopt umbrella branding as this will help exploit the goodwill among low-end consumers. Consistent with this intuition, we show that it is more profitable for a monopolist to pursue umbrella branding when the follower effect is large. In a competitive market, however, we find that it is not profitable for firms to adopt an umbrella branding strategy despite low-end consumers' strong desire to emulate the leaders. To understand the reason for this reversal in the result, note that the positive effect on the reservation prices of low-end consumers caused by the follower effect is the same for both firms. So the net direct effect on the branding strategy of any of the symmetric firms is zero. However, the desire to follow has a strong indirect effect on the branding strategy of firms. Specifically, as λ_f increases, each firm becomes motivated to sell more to high-end consumers so that it can exploit the resulting positive valuation among low-end consumers. This intensifies price competition for the high-end consumers and lowers the profits of the competing firms.

- *Will increased consumer desire for uniqueness motivate a firm to use individual branding?* Some of our intuition might suggest that if consumers desire uniqueness, then a firm should adopt individual branding, as this will help protect the sales to the high-end consumers by insulating the firm from the potential negative effects associated with selling the same product to the low-end consumers. Indeed, it is more profitable for a monopolist to pursue individual branding when the desire for uniqueness is strong. But in a duopoly, it is not profitable for firms to adopt individual branding strategy despite consumers' strong desire for uniqueness. This is because as snobbishness increases, it becomes less attractive to sell to the followers using an umbrella brand. This helps to soften price competition and improve firms' profits.

- *How do social effects influence brand value?* To precisely assess the marginal value of an umbrella brand, it is necessary to compare the equilibrium profits

after controlling for the competitor's branding strategy. Specifically, we should be able to control the competitor's branding strategy but let the firm choose the optimal marketing mix. Our analysis shows that the marginal value of an umbrella brand could be negative if follower effect is large but turn positive if snob effect is high.

• *How does the presence of consumers, who would choose to buy the low-quality product instead of the high-quality product if the firm sold both products under the same umbrella brand, affect firms' branding strategy?* Some of our intuition might suggest the presence of such consumers would deter a firm from adopting umbrella branding. Although this intuition in valid in a monopoly, it does not always hold in a duopoly. In a competitive setting, the presence of such consumers changes market competition. The low-end consumers are more price sensitive, and they intensify price competition if firms adopt individual branding. As such, duopolists may be motivated to adopt umbrella branding and thereby soften price competition. We find that the relative profitability of umbrella branding could increase as the mass of such consumers increases. More generally, our results on the relative profitability of umbrella branding hold even if some consumers could potentially buy the product not targeted to them.

• *If consumers' product preference is not related to social status, would umbrella branding become less attractive to competing firms?* The association between product preference and social status can be broken by letting some snobs purchase a product from one product category and the remaining snobs purchase products from another category. Similarly, a fraction of followers purchase from one product category whereas others do so from the second product category. Eliminating the link between product preference and social status makes umbrella branding the dominant strategy over a larger parameter space (compared with the original model). Moreover, umbrella branding can be more profitable even when $\lambda_f > \lambda_s$.

• *Why does it matter whether a brand's value comes from product quality or the customer profile?* Our analysis shows that neglecting social influences and exclusively focusing on the quality of a conspicuous good could lead a firm to adopt the wrong branding strategy. This is because the strategic effects, highlighted earlier, gain force in the presence of social influence and lead to counterintuitive results.

There are several avenues for further research. In developing our model, we have made several simplifying assumptions so that we can highlight the key results with clarity. We then extended the model in several directions to assess the robustness of our findings. In pursuing this goal, we relaxed one assumption at a time so that the model remains sufficiently tractable. Further research can explore a richer model of intrafirm switching and interfirm competition. Much like branding, advertising plays a very important role in the marketing of conspicuous goods. Moreover, advertising of conspicuous goods does not merely inform consumers but also persuades them. Future work can potentially investigate how persuasive advertising affects conspicuous consumption. Furthermore, as the sales of conspicuous goods are sensitive to the size and composition of a firm's customer base, it will be fruitful to study how a firm should target its communication message. There is also a need to further evaluate our predictions with field data to the extent possible. Marketing of conspicuous goods is a promising area for developing analytical models with greater psychological realism (e.g., Ho and Zhang 2008, Orhun 2009).

Supplemental Material

Supplemental material to this paper is available at http://dx.doi.org/10.1287/mnsc.2014.2078.

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