

WILFRED AMALDOSS and SANJAY JAIN*

Social needs play an important role in the purchase of conspicuous goods. In this article, the authors extend traditional economic models to accommodate social needs, such as desire for uniqueness and conformism, and examine their implications for pricing conspicuous goods. First, in the context of a duopoly, the authors identify the conditions under which the desire for uniqueness can increase demand among some consumers as the price of a product increases. Second, the authors show that though the desire for uniqueness leads to higher prices and firm profits, a desire for conformity leads to lower prices and profits. Third, the authors find that consumers purchase high-quality products not because of their desire for uniqueness but despite it. Finally, marketers of conspicuous goods may find it beneficial not to emphasize the functional differences among their products when the need for uniqueness is high. In a laboratory test, the authors find support for the claim that demand for a product among consumers who desire uniqueness may increase as its price increases.

Pricing of Conspicuous Goods: A Competitive Analysis of Social Effects

Conspicuous goods differ from many frequently purchased goods in an important way: They satisfy not just material needs but also social needs such as prestige (e.g., Belk 1988; Grubb and Grathwohl 1967). This difference has important implications for how such goods are marketed. Marketing textbooks caution marketers of prestige goods that they should not price their products too low, because they could sell less at a lower price (e.g., Berkowitz, Kerin, and Hartley 2000; Boone and Kurtz 1999; Perreault and McCarthy 2000). A common practice of marketers of conspicuous goods, such as cars, jewelry, perfumes, and watches, is to emphasize the exclusivity of their products. For example, in a study of 2000 randomly selected magazine advertisements, Pollay (1984) finds that uniqueness appeals are used as a central theme in 10% of magazine advertisements and as a subordinate theme in 23%. Other firms use exclusive distribution channels to restrict the availability of their products. Christian Dior, for example, sued supermarkets for carrying its products, because wide availability could hurt the firm (*Marketing*

Week 1997). Luxury goods manufacturers are also advised not to sell their products over the Internet because doing so might dilute their image (Curtis 2000). Thus, marketers are motivated to maintain a product's exclusivity in part because they believe that some consumers might find the product less valuable if it becomes widely available.

Prior research has identified the existence of two competing social needs among consumers: a need for uniqueness and a countervailing need for conformity (Brewer 1991; Fromkin and Snyder 1980). When consumers purchase products to satisfy their need for uniqueness, the value of the product increases as its perceived uniqueness increases.¹ In other words, consumers could value a product less when more consumers own it. There is evidence of such behavior even in the case of products such as cookies (Worchel, Lee, and Adewole 1975). Prior research suggests that the need for uniqueness is an individual-level trait (Brewer 1991; Fromkin and Snyder 1980; Tian, Bearden, and Hunter 2001).² An important implication of this body of research is that people could choose to buy a different product merely for the sake of being different from other consumers rather than to display their wealth or social status.

*Wilfred Amaldoss is Associate Professor of Marketing, Fuqua School of Business, Duke University (e-mail: wilfred.amaldoss@duke.edu). Sanjay Jain is Associate Professor of Marketing, Robert H. Smith School of Business, University of Maryland (e-mail: sjain@rhsmith.umd.edu). Both authors contributed equally to the article. The authors thank Darryl Banks, Jim Bettman, Ed Fox, Joel Huber, P.K. Kannan, Paul Messinger, Ambar Rao, Ram Rao, Amnon Rapoport, Rick Staelin, Jaclyn Zires, and the anonymous *JMR* reviewers for their helpful comments.

¹See also Nagel and Holden (2002, p. 92), who suggest that exclusivity adds to the objective value of a product.

²The need for uniqueness could be influenced by early childhood socialization that emphasizes creativity and individuality. Factors such as family size, order of birth, and number of same-sex siblings also seem to influence the strength of this trait (Chrenka 1983).

Another social need that influences the purchase of conspicuous goods is consumers' desire to conform. Some consumers value a product more as the number of other consumers who buy the product increases (Jones 1984; Ross, Bierbrauer, and Hoffman 1976). There is evidence of conformism in the purchase of books, toys, and garments. The need for conformism has also been identified as an individual trait (McGuire 1968).³

The focus of behavioral research, which has examined the role of products as a means of self expression, has been to describe the psychological and social underpinnings of consumer behavior, not firm behavior. The phenomenon of conspicuous consumption has significant strategic implications for firm behavior and raises some notable research questions. For example, marketers of conspicuous goods believe that demand might drop if they price their products lower. However, it is not clear under what conditions, if any, this belief is valid. Another prevailing opinion of managers is that exclusivity may enable a firm to earn higher profits, but it is not obvious how consumer desire for uniqueness affects firm profits. In popular magazines such as *Vogue*, many advertisements for conspicuous goods, though visually appealing, do not highlight the functional differences of the focal products. Indeed, in an empirical study of cosmetics, Chao and Shor (1998) find that conspicuous cosmetics are less differentiated. This raises yet another theoretical question: How does functional differentiation of conspicuous goods affect firms' prices and profits?

Overview

In this article, we develop an analytical model that incorporates social influences on consumer behavior, and we then examine the model's implications for firms' prices, profits, and market shares. The model extends the traditional economic model of consumer decision making by accommodating consumer desire for uniqueness and conformity (see Brewer 1991; Fromkin and Snyder 1980). In our model, two firms are competing to cater to two segments of consumers. One segment desires uniqueness, and therefore its value for a product decreases as the number of people who buy the product increases. We label the consumers in this segment *snobs* (see also Grossman and Shapiro 1988). The other segment desires conformity, and therefore its value for a product increases as the number of people who buy the product increases. We refer to the consumers in this segment as *conformists*. Our theoretical analysis provides some useful insights into conspicuous consumption. First, we find that indeed more snobs may buy a product when its price rises. However, this can happen only when a segment of consumers are (weakly) conformists. Our analysis also provides some support for the notion that increased desire for uniqueness leads to higher prices and firm profits. We find that, in general, snobs buy a higher-quality product despite their desire for uniqueness and not because of it. Furthermore, firms producing conspicuous products may sometimes find it beneficial to

downplay the functional differences between their products, because emphasizing functional differences can lead to increased price competition and a decline in firm profits. In the tradition of the experimental economics literature, we subject our duopoly model to a laboratory test (e.g., Amaldoss et al. 2000; Ghosh and John 2000; Smith 1982; Srivastava, Chakravarti, and Rapoport 2000). The experimental results provide strong support for a key prediction of the model: More snobs buy a product as its price increases.

Related Literature

Our work is related to the marketing literature on the role of products in expressing self (Belk 1988; Grubb and Grathwohl 1967; Simonson and Nowlis 2000; Snyder 1992). The work is also related to economics literature on wealth signaling, by which consumers purchase products to indicate their wealth or social status. Bernheim (1994), for example, shows that when status is sufficiently important relative to intrinsic utility, many people conform to a single standard of behavior, despite heterogeneous underlying preferences. Pesendorfer (1995) shows that if fashion designs help people signal their social status to potential dates, it can lead to fashion cycles. In his model, an innovative fashion design becomes a new signaling device and thereby undermines the value of older and more common designs. Bagwell and Bernheim (1996) and Corneo and Jeanne (1997) argue that conspicuous consumption is a consequence of consumers' desire to signal their wealth. For example, some people may buy a Ferrari merely because many others cannot afford such an expensive car. Thus, in the signaling literature, consumers may use their purchase decisions to signal a latent variable, such as wealth or status, which cannot be directly observed. The behavioral literature, however, argues that social needs, such as desire for uniqueness and conformity, are traits that need not necessarily be related to income levels or social status (see Bearden, Netemeyer, and Teel 1989; Tian, Bearden, and Hunter 2001). Consistent with this view, we incorporate social influences directly within the utility formulation as consumption externalities. In the signaling literature, however, consumer utility is increased only if a person successfully signals his or her wealth (or another latent variable). Thus, our model formulation is very different from the signaling models. Furthermore, in contrast to our model, the wealth signaling framework cannot account for an upward-sloping demand curve for snobs. The intuition for this result is that if more consumers buy a product, its signal value must decrease for snobs. Consequently, the firm needs to decrease price to increase demand, which implies a downward-sloping demand curve (Corneo and Jeanne 1997).

Another body of research in economics has attempted to incorporate social aspects into formal economic analysis. Liebenstein (1950) drew the attention of economists to the importance of social factors in consumption (see also Veblen 1899). Becker (1991) uses conformism to explain why similar restaurants might eventually experience vastly different sales patterns. He shows that, in equilibrium, the demand curve for conformists could be upward sloping, though the equilibrium is neither unique nor stable. Another stream of research that studies consumption externality is the research on network goods (see, e.g., Besen and Farrell 1994; Katz and Shapiro 1994). However, the motivation for consumption externality in this literature is technological rather than social. Our model is also related to the literature

³For example, Cox and Bauer (1964) suggest that people with low self-esteem comply with others' suggestions to avoid social disapproval. The innate desire to conform is often used to explain the persistence of social customs. Similar arguments are also advanced to explain participation in trade unions (Naylor and Cripps 1993) and fair wages (Romer 1984). In addition, for a discussion of the sociobiological bases of intrinsic human needs such as desire for uniqueness and conformity, see Frank (1985).

on congestion, by which an increase in the number of users has an indirect adverse effect on the utility of consumers (e.g., Lippman and Stidham 1977; Mendelson and Whang 1990; Naor 1969). This stream of research focuses on designing socially optimal systems to reduce the negative impact of congestion effects. In our model, we include a consumer segment that experiences a positive externality and another segment that experiences a negative externality. It is the coexistence of both of these externalities that leads to many of our results that cannot be observed in the network externalities research and congestion effects literature, in which only one type of externality is studied.⁴

Contribution

Our research makes some useful contributions to the literature on conspicuous consumption. First, unlike the behavioral literature in marketing, we focus on developing a formal utility-based model to examine the implications of social influences on consumer demand and firms' prices and profits. Our work adds to the stream of research that attempts to integrate well-established psychological principles into economic analysis with the goal of improving psychological realism in economic models (for a review, see Rabin 2002). Second, we model snobs and conformists using a consumption externality, in contrast to the signaling models in economics. Third, we investigate how equilibrium prices and profits are sensitive to the degrees of conformism and snobbishness that exist in the market. Fourth, we highlight the impact of product differentiation on equilibrium prices and profits. Finally, we provide empirical support for some of the predictions of our duopoly model.

MODEL

Consider a duopoly in which firms are located at the opposite ends of a Hotelling line, Firm 1 at 0 and Firm 2 at 1. As we discussed previously, the market comprises two types of consumers: snobs and conformists.

Snobs

These consumers desire uniqueness, and therefore their valuation for a product decreases as more people buy the product. They form a fraction β of the consumers in the market. A snob located at θ on the Hotelling line derives some (expected) indirect utility from purchasing Product 1, which is given by

$$(1) \quad U_s(z_1^e, p_1) = \omega_s v_1 - p_1 - \theta t_s - \lambda_s z_1^e,$$

where v_1 is the base quality level for Firm 1's product, p_1 is the price for Product 1, and z_1^e is the expected total number of buyers for Product 1. The term ω_s captures the extent to which snobs are sensitive to quality, and t_s represents the sensitivity of snobs to product characteristics (Grossman and Shapiro 1984). The degree to which the consumers desire uniqueness is captured in $\lambda_s \geq 0$. As λ_s increases, snobs value uniqueness more.⁵ Similarly, the indirect utility derived by the consumer from buying Product 2 is given by

$$(2) \quad U_s(z_2^e, p_2) = \omega_s v_2 - p_2 - \theta(1 - t_s) - \lambda_s z_2^e.$$

We denote the value distribution for snobs by a continuous distribution $F_s(\cdot)$ with a corresponding probability density function $f_s(\cdot)$. We assume that the market is fully covered. Furthermore, each consumer buys at most one unit of the conspicuous good. This assumption is tenable for conspicuous goods such as cars. Therefore, the number of snobs who will buy Product 1 is

$$(3) \quad x_1 = \beta F_s[\theta_s(z_1^e)],$$

where $\theta_s(z_1^e)$ is the location of the snob who is indifferent between the two products for a given sales expectation z_1^e . In turn, $\theta_s(z_1^e)$ is given by

$$(4) \quad \theta_s(z_1^e) = \frac{t_s + \omega_s(v_1 - v_2) + (p_2 - p_1) + \lambda_s(1 - 2z_1^e)}{2t_s}.$$

Conformists

The proportion of conformists in the population is $(1 - \beta)$. These consumers value the product more when more consumers buy the product. Therefore, the indirect utility derived from Product 1 by a conformist located at θ is given by

$$(5) \quad U_c(z_1^e, p_1) = \omega_c v_1 - p_1 - \theta t_c + \lambda_c z_1^e,$$

where v_1 is the base quality level, p_1 is the price for Product 1, and z_1^e is the expected number of buyers for Product 1. The interpretations of ω_c , t_c , and λ_c are parallel to those discussed for snobs. The terms ω_c and t_c represent the sensitivity of conformists to the quality and horizontal differentiation of a product, respectively, whereas λ_c ($\lambda_c \geq 0$) captures the intensity of desire for conformity. Similarly, the utility of conformists buying Product 2 is given by

$$(6) \quad U_c(z_2^e, p_2) = \omega_c v_2 - p_2 - (1 - \theta)t_c + \lambda_c z_2^e.$$

We assume that the value distribution for conformists is given by a continuous distribution $F_c(\cdot)$ with a corresponding probability density function $f_c(\cdot)$ and that the full market is covered. Then, the number of conformists who will buy Product 1 is given by

$$(7) \quad y_1 = (1 - \beta)F_c[\theta_c(z_1^e)],$$

where $\theta_c(z_1^e)$ is the location of the conformist who is indifferent between the two products for a given expectation z_1^e , and $\theta_c(z_1^e)$ is given by

$$(8) \quad \theta_c(z_1^e) = \frac{t_c + \omega_c(v_1 - v_2) + (p_2 - p_1) - \lambda_c(1 - 2z_1^e)}{2t_c}.$$

Consistent with prior literature, we assume that consumer expectations are rational, implying that they are correct in equilibrium (see, e.g., Becker 1991; Katz and Shapiro 1994; Rajiv, Dutta, and Dhar 2002). Therefore, we assume that

$$(9) \quad z_1 = x_1 + y_1 = z_1^e.$$

This parsimonious model captures some important differences between snobs and conformists. They may differ in their sensitivity to vertical differentiation ($\omega_c \neq \omega_s$) and horizontal differentiation ($t_c \neq t_s$). In addition, their value

⁴ P_1 establishes the presence of a stable and unique upward-sloping demand curve for the snobs. In Corollary 1, we show that this result requires the presence of both consumer segments.

⁵We assume that snob effect is linear in the total sales for analytical tractability because it ensures the existence of a unique rational-expectations equilibrium. Similar linearity assumptions are made in models of network effects (see, e.g., Farrell and Saloner 1992).

distribution could be different (F_s and F_c). Thus, this model enables us to investigate how changes in these characteristics of snobs and conformists may impact their behavior and firms' strategies.

Another important feature of our model is that consumers care about the total sales rather than the identity of the buyers. This formulation captures the spirit of consumer desire for uniqueness and conformity as discussed in the behavioral literature. In some contexts, however, it is possible that consumers care about not only the number of consumers who buy the product but also the identity of the buyers. For example, some consumers could experience a sharper drop in utility if members outside their group rather than members of their own group buy the product. Such a formulation is more consistent with the notion of reference groups, which is not the focus of this article.⁶

Now using Equations 3, 7, and 9, we derive the rational-expectations equilibrium. The relevant equation is

$$(10) \quad \Omega(z_1) = \beta F_s \left[\frac{t_s + \omega_s(v_1 - v_2) + (p_2 - p_1) + \lambda_s(1 - 2z_1)}{2t_s} \right] + (1 - \beta) F_c \left[\frac{t_c + \omega_c(v_1 - v_2) + (p_2 - p_1) - \lambda_c(1 - 2z_1)}{2t_c} \right] - z_1 = 0.$$

Equation 10 implicitly describes the demand $z_1(p_1, p_2)$ under the rational-expectations condition. The following lemma establishes the condition under which there exists a unique rational-expectations equilibrium for any price pair (p_1, p_2) .⁷

Lemma 1. There exists a rational-expectations equilibrium for any given pair of prices (p_1, p_2) . The equilibrium is unique if and only if

$$(11) \quad -\frac{\beta \lambda_s f_s(\theta_s)}{t_s} + \frac{(1 - \beta) \lambda_c f_c(\theta_c)}{t_c} - 1 < 0$$

at the equilibrium point where

$$(12) \quad \theta_s = \frac{t_s + \omega_s(v_1 - v_2) + (p_2 - p_1) + \lambda_s(1 - 2z_1)}{2t_s} \text{ and}$$

$$(13) \quad \theta_c = \frac{t_c + \omega_c(v_1 - v_2) + (p_2 - p_1) - \lambda_c(1 - 2z_1)}{2t_c}.$$

We focus on interior solutions.⁸ Equation 11 suggests that there is a unique rational-expectations equilibrium if the net conformism effect, which is $(1 - \beta)\lambda_c f_c/t_c$, is small. The net conformism effect will become small if the proportion of snobs in the population (β) and the horizontal differentiation (t_c) increase. The net conformism effect will also decrease if λ_c and $f_c(\cdot)$ reduce.⁹ Lemma 1 raises a natural

question: What would happen if the net conformism effect were large? In such a case, even a small change in price could induce a bandwagon effect, and there would be multiple Nash equilibria.¹⁰ In the rest of the article, we assume that Equation 11 holds and consequently that there is a unique rational-expectations equilibrium.

Effect of Price on Demand

Now we examine how prices affect the demand for the two products.

P_1 : If Equation 11 is satisfied, more snobs buy Product 1 as p_1 increases or p_2 decreases when

$$(14) \quad \lambda_s > \frac{t_c}{(1 - \beta)f_c} - \lambda_c = \lambda_s^*.$$

However, the total demand and the demand from conformists for Product 1 always decline as p_1 increases or p_2 decreases.

P_1 clarifies that when the snobbish effect is large enough, a product can become more attractive to a segment of the population as its price increases. More specifically, a firm's own-price effect becomes positive and its cross-price effect turns negative for snobs. Note that this unusual demand pattern is confined to snobs. Conformists and the overall market are likely to buy less as price rises.

To better appreciate the intuition for this key result, we first consider a market composed of either only snobs or only conformists and then study the implications of snobs and conformists coexisting in a market.

Market composed of only snobs or only conformists. If a market is composed of either only snobs or only conformists, we would not observe the unusual demand pattern. This is summarized in the following corollary:

Corollary 1. If $\beta = 0$ or $\beta = 1$, fewer consumers purchase Product 1 as p_1 increases or p_2 decreases.

The corollary shows that fewer snobs buy as price increases if the market consists of only snobs. Therefore, it is the presence of both groups in the market that enables us to observe the phenomenon of more snobs demanding a product when the price increases.

To obtain a better grasp of the rationale for this result, we first analyze a market composed of only snobs. To observe how a unit change in price affects a consumer's expected utility from buying Product 1, we have

$$(15) \quad \frac{\partial U}{\partial p_1} = -1 - \lambda_s \frac{\partial x_1^e}{\partial p_1}.$$

Note that if the consumer expects $\partial x_1^e/\partial p_1$ to be negative, then for a sufficiently large λ_s , it is possible for the consumer's utility to increase with price. This outcome, however, implies that as the price increases, the total number of consumers who will buy the product will increase, thus giv-

⁶This effect could be represented by a function $g(x_1^e, y_1^e)$, where $\partial g(\cdot)/\partial x_1^e < 0$, $\partial g(\cdot)/\partial y_1^e < 0$, while allowing for the possibility that the effect sizes could be different. Nevertheless, many of our results hold in this alternative framework.

⁷For the existence proof for a game with only conformism effects, see also Karni and Levin (1994).

⁸A technical appendix is available from the authors and can be downloaded from http://www.rhsmith.umd.edu/marketing/faculty/jain/pricing_conspicuous_goods_appendix.pdf.

⁹For example, if $f_c(\cdot)$ is uniform, the conformism effect decreases when the range of the uniform distribution increases.

¹⁰If this condition is not satisfied, it is possible to observe corner solutions in which there are asymmetric solutions even when the firms are completely symmetric a priori. For example, consider the case in which the market consists of only conformists; that is, $\beta = 0$. Also assume that $t_c = 1$, f_c is uniform $(0, 1)$, and prices are the same. In this case, if $\lambda_c > 1$, then the condition in Lemma 1 is violated. In such a situation, we can only have asymmetric solutions in which one firm has the full market and the other firm has zero sales.

ing rise to an upward-sloping demand curve (i.e., $\partial x_1^e / \partial p_1 > 0$). Such reasoning could form the basis of naive intuition. Note, however, that for this intuition to be valid it is necessary for the consumer to expect a downward-sloping demand curve (i.e., $\partial x_1^e / \partial p_1 < 0$). It is natural indeed to form such an expectation on the basis of everyday observations of the demand pattern of fast-moving consumer goods.

Next, we examine the implications of the consumer forming a rational expectation. If utility increases with price, then demand is likely to grow with price. However, Equation 15 shows that if $\partial x_1^e / \partial p_1 > 0$, then consumer utility must be decreasing with price, irrespective of the size of λ_s . Thus, if consumers expect an upward-sloping demand curve, the realized demand curve will be downward sloping. Therefore, such an expectation is not rational. The only situation that is consistent with the rational-expectations condition is that the expected demand curve is downward sloping and the consumer's utility is decreasing in price.

A similar argument shows that if the market consists of only conformists and the conformist effect is bounded by Equation 11, the demand for a product would decrease as its price increases.

Market composed of both snobs and conformists. Now we examine why the presence of both conformists and snobs is critical for an upward-sloping demand curve. Consider a consumer who is a snob. The change in expected utility of such a consumer, when price changes, is given by

$$(16) \quad \frac{\partial U_s}{\partial p_1} = -1 - \lambda_s \frac{\partial}{\partial p_1} (x_1^e + y_1^e).$$

If the consumer expects the total demand curve to be downward sloping and λ_s is large enough, the consumer's expected utility is increasing in price. Consequently, under a rational-expectations equilibrium, we could observe an upward-sloping demand curve for the snobs. Note that it is the presence of conformists that enables us to observe an upward-sloping demand curve for snobs. This is because the presence of conformists allows for the possibility that the total demand might fall when price rises. This drop in demand makes the product attractive to the snobs. Then for a sufficiently large λ_s , more snobs are likely to buy the product as price increases.

Discussion. P_1 clarifies that an upward-sloping demand curve for snobs is likely to be observed only when the market includes a group of consumers who are (weakly) conformists.¹¹ This result is not dependent on either the differences in quality between the two products or the different values that segments may hold for quality. Rather, it is the direct consequence of social influences on consumer purchase decisions.¹² Note that our result contradicts Liebenstein's (1950) claim that the demand curve for snobs will always be downward sloping. Corroborating evidence for

our results is found in Chao and Schor's (1998) study, which finds that the overall demand curve for conspicuous items, such as women's cosmetics, decreases with price. However, Chao and Schor find that the demand for cosmetics such as lipsticks, mascara, and eyeshadow increases with price for college-educated women. To the extent that these women are more likely to desire exclusivity, the results are consistent with our theoretical results. The demand curve for women who have not graduated from college is downward sloping as we would expect. Finally, Chao and Schor also find that nonconspicuous products, such as facial cleanser, exhibit downward-sloping demand curves for all segments. This is also consistent with our results.¹³ In the empirical section, we assess the descriptive validity of P_1 in a controlled laboratory setting.¹⁴

Effect of Snobbishness and Conformism

Now we explore how λ_s and λ_c affect equilibrium prices and profits. For analytical tractability, we assume that f_s and f_c are uniform. Although this assumption guarantees the existence of a unique Nash equilibrium in prices, it is not a necessary condition.¹⁵ We also assume that the marginal costs for both products are the same, and we equate them to zero.¹⁶ Note that in our model, f_s and f_c could be different, implying that snobs could have a higher mean valuation for the products than do conformists, and vice versa. In addition, as we previously discussed, snobs and conformists could differ in their sensitivity to quality and horizontal product differentiation. With this setup, we proceed to examine how the equilibrium profits and prices are affected by snobbishness and conformity.

P_2 : The equilibrium prices and profits decrease in conformity and increase in snobbishness.

It is commonly believed that exclusive products are likely to be more expensive. Our results establish the conditions under which this common belief might hold. We find that snobbish behavior leads to higher profits. This result provides some justification for the use of marketing strategies that are intended to create an exclusive image for a product. As we discussed previously, the use of uniqueness appeals in advertising is quite common (Pollay 1984).

The reason for this result can be understood by noting how conformity and snobbishness change the complexion of competition. Consider the impact of conformity. As the

¹³For example, the price coefficient for lipstick is $-.19$ for women with a high school diploma. For women with a college degree, the price coefficient is $+.117$. However, the overall price coefficient is $-.157$. Chao and Schor (1998) also find that the correlation between quality and price in this category is zero. Therefore, price could not be a credible signal of quality in this case. Similar results were also observed for mascara and eyeshadow.

¹⁴We derived P_1 using the implicit function theorem (which requires local differentiability). The continuity assumptions were useful to prove the uniqueness and existence of a rational-expectations equilibrium. However, as our discussion of the intuition using Equation 15 shows, the proof would go through even if $F_s(\cdot)$ were not continuous. In addition, the arguments would hold even if demand were discrete. For example, in the empirical section, we consider a discrete version of this model.

¹⁵For example, a weaker condition that ensures that the solutions are unique and stable is that $|\partial^2 \Pi_i / \partial p_i^2| > |\partial^2 \Pi_i / \partial p_i \partial p_j|$ and $\partial^2 \Pi_i / \partial p_i^2 < 0$. Intuitively, these conditions require that the profit functions are concave and that own-price effects are stronger than cross-price effects. Such conditions on the reduced-form profit functions hold for a wide variety of models.

¹⁶We relax this condition subsequently.

¹¹Note that the result does not require the presence of conformists. In particular, the demand curve for snobs could be upward sloping even if $\lambda_c = 0$; that is, there exists a segment of consumers whose utility is unaffected by the choices of other consumers.

¹²In addition, the results do not depend on the full-coverage assumption, because the arguments used to provide an intuition for the results would apply even if the full market were not covered as in a monopoly setting. Indeed, an analogous result can be obtained in the monopoly case. (For a formal proof of the monopoly case, see Amaldoss and Jain 2004.)

number of consumers who buy Product 1 grows, the value of the product increases for the conformists, and therefore the relative value of Product 2 decreases. This implies that a unit reduction in price by Firm 1 affects its total demand in two ways. First, the price reduction makes Firm 1's product more attractive than Firm 2's product, so the demand for Product 1 increases. Second, as the consumers can rationally expect the demand for Product 1 to increase, the value of the product for the conformists increases, and therefore they find it even more attractive to buy Product 1. Thus, as the degree of conformity increases, firms are lured to cut prices. The ensuing price competition causes the equilibrium prices to drop.

Next consider the case in which the degree of snobbishness in the market increases. Now if Firm 1 decreases its prices, it expects to obtain more consumers. However, this increase in demand reduces the value of the product for the snobs, and they are less likely to buy the product. Therefore, as the degree of snobbishness increases, reducing prices becomes less attractive to both firms. The consequent reduction in price competition helps firms charge higher prices and make more profits.¹⁷

Effect of Quality Differences

Shifting focus to asymmetric firms, we examine the impact of snobbishness and conformism on firms that produce products with different levels of quality. Without loss in generality, we assume that the base quality of Product 2 is better than that of Product 1 ($v_1 < v_2$). We consider the case in which both snobs and followers value quality equally ($\omega_s = \omega_c$) and the marginal costs of the two products are the same ($c_1 = c_2$). We relax these conditions subsequently.

P_{3.1}: If $v_1 < v_2$ and $\omega_s = \omega_c$, then (a) the firm producing the high-quality product charges a higher price and has a larger total market share; furthermore, as λ_c increases (or λ_s decreases) the high-quality product's market share increases; (b) among conformists, the high-quality product has a larger market share than the low-quality product; and (c) among snobs, if $\lambda_s > \lambda_s^*$, where λ_s^* is defined as in Equation 14, then the high-quality product has a lower market share than the low-quality product.

The first part of the result shows that conformism increases the market share for the high-quality product and consequently reduces the market share for the low-quality product. In the absence of social effects, the high-quality product would have a higher market share. Thus, conformism exacerbates the impact of quality on market share differences. Conversely, snobbishness decreases the impact of quality on differences in market share between products, because snobbishness motivates the high-quality product's manufacturer to raise prices rather than go after market share.

¹⁷Alternatively, we can argue that snobbishness reduces price elasticity and thereby leads firms to prefer margins over market share. Conversely, conformism increases price elasticity. Because prices are strategic complements in a competitive setting, snobbishness increases the tendency to "collude" whereas conformism increases the tendency to "compete." Thus, snobbishness leads to higher prices and profits, whereas conformism has the opposite effect. We thank an anonymous reviewer for suggesting this intuition.

The last part of the result shows that if snobbishness is sufficiently large, a majority of the snobs might buy the low-quality product. Note that in our model, *ceteris paribus*, snobs prefer high-quality to low-quality products. Indeed, all consumers prefer high-quality products. Therefore, as a product becomes more attractive because of its improved quality, the snobs (correctly) expect that more consumers will buy the product. Consequently, the high-quality product becomes less attractive to snobs. This result shows that snobs may indeed buy a low-quality product to differentiate themselves from others.

Note that the results do not suggest that snobs have a tendency to buy lower-priced products. To better appreciate this point, consider the case in which both firms have products of the same quality but one firm charges a higher price (possibly because it has higher costs). In this case, if $\lambda_s > \lambda_s^*$, then from **P₂** we know that snobs have an upward-sloping demand curve. Consequently, snobs are more likely to buy the higher-priced product because of their snobbishness. Thus, in general, when snobbishness is large, snobs prefer the higher-priced product. However, **P_{3.1}** clarifies that if the price differences are purely due to differences in quality and both groups value quality equally, this result does not hold. Although high prices tend to make the product attractive to snobs (because of its negative impact on total demand), higher quality tends to decrease attractiveness to snobs (because it leads to an increase in total market demand). Therefore, if the price differences are purely due to quality differentials and both groups value quality equally, the quality effect overwhelms the price effect, and more snobs purchase the low-quality product when the snob effect is large.

Given the counterintuitive nature of **P_{3.1}**, we explore the conditions under which it might be reversed. Note that **P_{3.1}** assumes that the snobs and conformists value quality equally and that the costs for each firm are the same even though the products are of different quality. Therefore, we first examine whether demand-side effects, such as differences in consumer valuation for quality, can reverse the result. Then, we investigate whether supply-side effects, such as differences in manufacturing costs, could change our results.

P_{3.2}: If $v_1 < v_2$ and $\omega_s > \omega_c$, then for sufficiently low values of λ_s and λ_c and high values of ω_s , we find that the high-quality firm has a lower market share among the conformists and a higher market share among the snobs.

P_{3.2} shows that if the social effects of consumption are not too strong and snobs have a strong preference for quality, most of the snobs would prefer to buy the high-quality product at a higher price. In contrast, the conformists might buy the low-quality product at a lower price. The intuition for this finding is that if snobs value quality highly, they will pay such a high price for the product that the product will become unattractive to the conformists, who value quality less.

Turning our attention to supply-side factors, we consider the case in which the costs for the two products are different. In particular, we assume that the marginal cost for producing a product of quality v is given by $c(v)$, where $c'(v) \geq 0$. In addition, the fixed costs for producing a product of quality v are given by $C(v)$, where $C'(v) \geq 0$. These assumptions reflect the notion that it costs more to produce a high-quality product.

P_{3,3}: If $v_1 < v_2$ and $\omega_s = \omega_c = \omega$, then the high-quality firm has a smaller market share among snobs and a larger market share among the conformists if $\lambda_s > \lambda_s^*$, as long as $\omega \geq c'(v_1)$. If $\omega < c'(v_1)$ and $\lambda_s > \lambda_s^*$, then the high-quality firm has a higher market share among snobs and a lower market share among conformists.

Note that in P_{3,1}, $c'(\cdot) = 0$. P_{3,3} clarifies that the results of P_{3,1} would be reversed by cost effects only under the strong condition that the marginal costs of quality are higher than the marginal value of quality to the consumer. To the extent that this condition is unlikely to be satisfied, P_{3,3} strengthens the claim of P_{3,1}.¹⁸

It is commonly believed that snobs tend to buy high-quality products at high prices. P_{3,1}–P_{3,3} provide a useful clarification of the theoretical basis for such behavior, which is likely to be observed when snobs value quality much more than other consumers do. In reality, it is likely that ω_s is higher than ω_c in many contexts, so snobs might often buy high-quality products at high prices. Therefore, our results suggest that snobs purchase high-quality products *despite* snobbishness and not *because* of it.

Another question is, How does sensitivity to product quality, among either snobs or conformists, affect firms' profits? As expected, we find that a firm with a quality advantage benefits when consumers become more sensitive to quality. More specifically, if $v_1 < v_2$, then as ω_s or ω_c increases, the profits of Firm 1 decrease and the profits of Firm 2 increase.¹⁹

Effect of Sensitivity to Horizontal Product Differentiation

We first study a symmetric case ($v_1 = v_2$) and then examine an asymmetric case ($v_1 < v_2$).

P_{4a}: If $v_1 = v_2$, then as t_c increases, the prices and profits of both firms increase. However, when t_s increases, prices and profits increase if $\lambda_s < \lambda_s^*$, where λ_s^* is defined in Equation 14; otherwise, prices and profits decrease.

P_{4b}: If $v_1 < v_2$ and $\omega_s = \omega_c$, then as t_c increases, the profits of Firm 1 increase, but when t_s increases, the prices and profits of Firm 1 decrease if $\lambda_s > \lambda_s^*$.

The first part of P_{4a} is intuitive. Note that as t_c increases, the relative importance of conformism decreases because consumers care more about the product fit. Consequently, firms have less incentive to reduce prices, which leads to reduced price competition. Therefore, as t_c increases, both firms charge higher prices and make higher profits.

Surprisingly, however, this result does not always hold for snobs. As the second part of P_{4a} implies, when the snob effect is large enough, an increase in t_s can reduce prices and profits. To understand this result, note that under the condition specified in the proposition, the demand curve for snobs is upward sloping. Therefore, as price increases, the demand for the product among snobs increases. As t_s increases, the relative importance of the snob effect decreases, and consumers are less willing to switch to the higher-priced product. In other words, t_s attenuates the effect of snobbishness, so an increase in t_s intensifies the price competition if the snobbishness is large enough. Con-

sequently, in such a case both firms charge lower prices and make lower profits.

The parameter t_i can be interpreted as the degree of perceived functional differences between the products (see Iyer and Soberman 2000). Therefore, as t_i increases, the perceived functional differences between products increase.²⁰ P_{4a} implies that while promoting conspicuous goods to snobs, managers should be cautious in stressing functional differences between the products. A more profitable strategy may be to promote the scarcity of their products instead of focusing on product differences in relation to the competition.²¹ This strategy is consistent with the observed advertising for goods ranging from perfumes to luxury cars.

P_{4b} clarifies that when firms are asymmetric, the results of P_{4a} are applicable only to the weaker firm and not necessarily to the stronger firm. When consumers care more about horizontal product differentiation, it normally softens price competition. This reduction in price competition is more likely to help the firm with a quality disadvantage. Indeed, this is what we observe when t_c increases. As in P_{4a}, the effect of t_s on the weaker firm's profits depends on the level of snobbishness.

However, the results of P_{4a} are not always applicable to the stronger firm. On the one hand, an increase in perceived differentiation can mitigate price competition. On the other hand, this increase reduces the ability of the stronger firm to leverage its quality advantage. Therefore, the effects of the differentiation parameters on the prices and profits of the stronger firm are ambiguous.

Discussion. Our model incorporates social effects in a mixed vertical/horizontal differentiation model. We model the social effects on the vertical dimension analogous to the quality variable. Note, however, that unlike quality, which is product centered, our modeling of social effects is consumer centered in that the impact of this variable is dependent on the actions of other consumers. It is natural then to ask the question, How does consumer desire for uniqueness and conformism affect the basic nonsocial foundation of the model?

We find that in the symmetric case, social effects change the prices that the firm charges. In particular, conformism leads to lower prices, and snobbishness induces higher prices. Yet consumer choices remain unaffected by the social effects. However, P_{3,1}–P_{3,3} show that when firms are asymmetric in terms of quality, social effects change not only the prices but also consumer choices and the firms' market share. In particular, if consumers value quality equally and the cost asymmetries are not too high, the snob effect tends to decrease the market share of the high-quality firm, and the conformist effect has the opposite effect. In other words, in such situations, social effects lead some snobs to trade down and buy a low-quality product that they would not have bought if social effects were absent. If the

¹⁸To understand why this condition is too strong, consider the case in which $c'(v_1) > \omega$. It can then be shown that Firm 1 can benefit by choosing a lower quality. We formally show this in the appendix (see n. 8).

¹⁹Proofs are available in the appendix (see n. 8).

²⁰To understand this, note that in the absence of price differences and social considerations, as t increases, consumers' strength of preference for the product that is closer to their ideal point increases. Therefore, consumers find it more difficult to switch from their preferred product as t increases. In other words, as t increases, the degree of perceived functional differences between two products increases.

²¹Note that uniqueness claims are consumer centered in that they imply or claim that only a few consumers own this product. In contrast, differentiation claims are competition centered in that they show how the product differs from the other products that the competition offers.

snob effect is large enough, more snobs may buy the low-quality product than the high-quality product. This effect can be counteracted if snobs value quality highly or if the marginal cost of quality is too high. Overall, the results in $P_{3,1}$ – $P_{3,3}$ show that social effects distort both the prices and the firms' market shares.

P_{4a} and P_{4b} examine how a change in the relative importance of horizontal differentiation affects firms' prices and profits. We find that in the absence of social effects, stronger horizontal differentiation would benefit the low-quality firm in general by making quality less important to consumers and thereby improving the firm's competitive position relative to its high-quality competitor. However, this result does not hold when the snob effects are large. We find that the presence of large snob effects can reverse the results for the snob segment. In particular, if the snob effect is large, an increase in the horizontal differentiation in the snob segment leads to a reduction in prices and profits for the weaker firm. Thus, the results again show that the presence of social effects can fundamentally change both firm strategies and consumer choices.

EMPIRICAL INVESTIGATION

The theoretical analysis makes several important predictions. The goal of the empirical analysis, however, is modest. We focus on testing the descriptive power of P_1 , which suggests that snobs buy more as price increases. Note that the behavioral implications of P_1 form the building blocks for the other theoretical propositions as well. In the tradition of experimental economics research, our research attempts to simulate the model structure without controlling for the behavioral assumptions about economic agents such as the ability to form rational expectations (e.g., Amaldoss et al. 2000; Smith 1982, 1989; Smith, Suchanek, and Williams 1988; Srivastava, Chakravarti, and Rapoport 2000). Indeed, prior research that compares forecasts of stochastic variables with actual outcomes suggests that people are poor at forming rational expectations (e.g., Garner 1982; Schmalensee 1976; Williams 1987).

Empirical Model

The theoretical model assumes a continuous value distribution. However, it is difficult to validate such a model in a laboratory setting with a small sample of subjects. Furthermore, the analytical results do not crucially depend on the continuity assumption, as we show in the discussion of the intuition for the results (see also n. 14). Therefore, we use a discrete distribution of valuations, such that the model can

be tested with a sample of 20 subjects. As we expected, the results using this discrete distribution are similar to those for a continuous distribution.

In keeping with the tradition in experimental economics, we named the two types of buyers Type A and Type B buyers, rather than snobs and conformists, so that the behavior of subjects would be guided purely by the negative and positive externalities captured in our model. Table 1 presents the distribution of valuations for ten snobs (labeled Type A buyers in our experiment) and ten conformists (Type B buyers in our experiment). We used $\lambda_s = .5$ and $\lambda_c = .6$. The resultant equilibrium demands for the snobs, the conformists, and the total market are shown in Figure 1. The demand curve for snobs is (weakly) upward sloping, whereas it is (weakly) downward sloping for conformists and the total market.

Subjects. We recruited 40 business school students for this study and paid them a show-up fee of \$5 in addition to a monetary reward contingent on their performance. On average, subjects earned approximately \$15. All transactions in the experiment were in an experimental currency called francs.

Experimental design. In our experiment, there were two sellers, each one selling a different product. Our goal was to trace the changes in demand among snobs and conformists. Therefore, we considered two different price points for Product 1 but kept the price of Product 2 constant at six francs. The prices were manipulated within subjects. Ten subjects labeled Type A buyers played the role of snobs, and another set of ten subjects labeled Type B buyers played the role of conformists. The two groups we ran comprised 20 subjects each. In Group 1, the price of Product 1 was five francs in the first 30 trials and seven francs in the next 30 trials. The order of prices was reversed in Group 2.

Procedure. Subjects played the role of buyers, and the computer played the role of sellers.²² In keeping with the spirit of the complete-information theoretical model, subjects were informed of λ_s , λ_c , and the value distribution.

Sellers. Seller 1 sold Product 1, and Seller 2 sold Product 2. The sellers posted their prices and promised to supply the products to all buyers who were willing to pay the posted prices. Buyers could not negotiate the price with the sellers, and the computer played the role of the two sellers.

Buyers. Each subject decided whether to buy Product 1 or Product 2. Each Type A buyer had a base value for Prod-

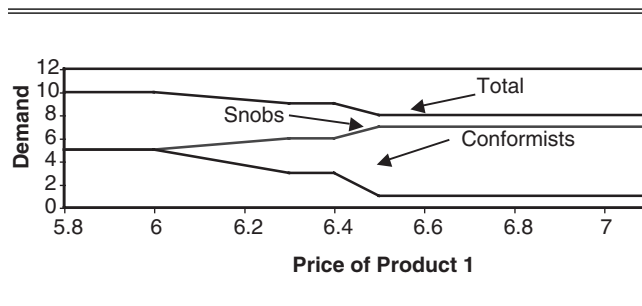
²²The instructions provided to the subjects can be obtained from the authors as a separate appendix (see n. 8).

Table 1
VALUE DISTRIBUTION FOR THE EMPIRICAL MODEL

	S_1^A	S_2^A	S_3^A	S_4^A	S_5^A	S_6^A	S_7^A	S_8^A	S_9^A	S_{10}^A
<i>Type A</i>										
Product 1	22	21.5	21	20.4	20.2	19.8	19.6	19.2	18.8	18
Product 2	18	18.5	19	19.6	19.8	20.2	20.4	20.8	21.2	22
	S_1^B	S_2^B	S_3^B	S_4^B	S_5^B	S_6^B	S_7^B	S_8^B	S_9^B	S_{10}^B
<i>Type B</i>										
Product 1	23	21.4	20.8	20.4	20	19.6	19.2	18.8	18.4	17.6
Product 2	17	18.6	19.2	19.6	20	20.4	20.8	21.2	21.6	22.4

Notes: S_j^i refers to Subject j of Type i .

Figure 1
EMPIRICAL MODEL DEMAND AS A FUNCTION OF PRICE



uct 1 and another base value for Product 2, as discussed in the empirical model (see Table 1). Note that the base values were not the same for all buyers. Furthermore, the base values for Products 1 and 2 were different for the same subject. These base values, however, remained fixed throughout the experiment. Type A buyers valued the product less when more people owned the product. Consequently, the actual value of the product systematically dropped below the base value when more people chose to buy the product.²³ Type B buyers, in contrast, valued the product more when more people owned the product. Therefore, the actual value of the product rose above the base value when more people chose to buy the product.²⁴

²³For example, consider the purchase decision of Type A Buyer 2, whose base value for Product 1 is 21.5 francs and for Product 2 is 18.5 francs (see Table 1). Let the price of Product 1 be 5 francs and that of Product 2 be 6 francs. If a total of only 11 Type A and Type B buyers purchase Product 1, the actual value of the product will fall to 16.5 francs (i.e., $21.5 - .5 \times 11 = 16$). Consequently, the net gain from purchasing Product 1 is 11 francs (actual value - price = $16 - 5 = 11$). In contrast, because a total of 9 (i.e., $20 - 11 = 9$) Type A and Type B buyers purchase Product 2, the actual value of that product is 14 francs for this particular buyer (i.e., $18.5 - .5 \times 9 = 14$). Therefore, on purchasing Product 2, this buyer would gain 8 francs (actual value - price = $14 - 6 = 8$). In this case, it is profitable for the buyer to purchase Product 1. Note that the actual value of a product changes with the total number of people purchasing that product.

²⁴For example, consider the purchase decision of Type B Buyer 9, whose base value for Product 1 is 18.4 francs and for Product 2 is 21.6 francs (see Table 1). Let the price of Product 1 be 5 francs and that of Product 2 be 6 francs. If a total of only 11 Type A and Type B buyers purchase Product 1, the actual value of the product will rise to 28 francs (i.e., $18.4 + .6 \times 11 = 25$). Consequently, the net gain from purchasing Product 1 is 20 francs (actual value - price = $25 - 5 = 20$). In contrast, because a total of 9 (i.e., $20 - 11 = 9$) Type A and Type B buyers purchase Product 2, the actual value of that product is 27 francs for this particular buyer (i.e., $21.6 + .6 \times 9 = 27$). Therefore, on purchasing Product 2, this buyer would gain 21 francs (actual value - price = $27 - 6 = 21$). Therefore, it is profitable for this buyer to purchase Product 2. Again, the actual value of a product changes with the total number of people purchasing that product.

At the commencement of each trial, subjects were endowed with seven francs so that they had sufficient funds to pay for the product if they wanted to buy it. They were also informed of their valuations for the two products, the distribution of valuations, and the price of the products. The type of subject, the total number of subjects, and the base valuations remained fixed across all trials.

In every trial, each subject decided whether to buy Product 1 or Product 2. After all the buyers made their decisions, the computer counted the total number of subjects who purchased Product 1 and Product 2. Then, based on the total number of subjects who bought the products, the actual values of the products for each subject were assessed. The payoff to a subject who bought a product was endowment + actual value of the product - price paid. At the end of every trial, each subject was informed of the number of Type A and Type B buyers who purchased the product and of the payoff for the trial.

To familiarize subjects with the structure of the game, they were required to play in three practice trials. Thereafter, they played 60 actual trials. After 30 actual trials of the game, the price of Product 1 was changed. At the end of the experiment, the cumulative earnings of the subjects, which were in an experimental currency, were converted to U.S. dollars and paid accordingly. Then, subjects were debriefed and dismissed.

Results

We observe in this study, as predicted by the equilibrium solution, an upward-sloping demand curve for Type A buyers (snobs) and a downward-sloping demand curve for Type B buyers (conformists). However, we note individual-level differences in the actions of our subjects.

Mean demand. Table 2 presents the mean observed demand for each of the two groups along with the corresponding theoretical predictions. The average number of Type A buyers who bought Product 1 increased from 3.93 to 5.53 units as the price rose from five to seven francs. This change in demand for Product 1 is significant ($F_{(1, 118)} = 36.75, p < .0001$). On examining the behavior within each group, we obtain similar results. In Group 1, the average demand for Product 1 shifted from 4.07 to 5.63 units among Type A buyers ($F_{(1, 58)} = 14.95, p < .001$). In Group 2, the corresponding demand increased from 3.8 to 5.43 units ($F_{(1, 58)} = 22.72, p < .001$).

According to theory, fewer conformists should buy Product 1 if the price increases. Across the two groups, the mean demand significantly dropped from 7.6 to 2.92 units as the price changed from five to seven francs ($F_{(1, 118)} = 168.25, p < .001$). The fall in demand is significant in each of the two groups. In Group 1, the mean demand slipped from 8.77 to 3.4 units ($F_{(1, 58)} = 218.71, p < .001$), and corre-

Table 2
MEAN DEMAND

Price	Type A Buyers (Snobs)				Type B Buyers (Conformists)			
	Actual Demand			Prediction	Actual Demand			Prediction
	Group 1	Group 2	Both		Group 1	Group 2	Both	
5	4.07	3.80	3.93	3	8.77	6.43	7.60	9
7	5.63	5.43	5.53	7	3.40	2.43	2.92	1

spondingly in Group 2, the mean demand fell from 6.43 to 2.43 units ($F_{(1, 58)} = 168.25, p < .001$).

In equilibrium, the overall demand should fall as price increases. The observed demand pattern is consistent with this prediction ($F_{(1, 118)} = 90.04, p < .0001$). We obtain similar results in each of the two groups (Group 1: $F_{(1, 58)} = 91.61, p < .0001$; Group 2: $F_{(1, 58)} = 42.44, p < .0001$).

If the price is seven francs, more snobs should buy Product 1. Empirical evidence supports this prediction. On average, Type A buyers bought 5.53 units, whereas conformists purchased only 2.92 units ($t = 8.7, p < .0001$). If the price is five francs, more conformists should purchase Product 1. At the low price, conformists bought 7.6 units on average, whereas snobs purchased 3.93 units ($t = 11.11, p < .0001$). The results are similar when we examine the demand pattern within each group.

Distribution of demand. The rational-expectations equilibrium makes point predictions about the demand for Product 1 among snobs and conformists. The actual demand, however, varies over the several trials of the experiment. Figure 2 shows the frequency distribution of demand over the 60 trials across the two groups. In equilibrium, three snobs should buy the product if the price is five francs. We notice that the actual demand for Product 1 ranges from 1 to

7, with mean = 3.93, median = 4, and mode = 3. If the price increases to seven francs, theory predicts that seven snobs should buy the product. The observed demand ranges from 2 to 8, with mean = 5.53, median = 6, and mode = 6.

According to the model, nine conformists should buy Product 1 when the price is five francs. Figure 2 shows that the actual demand ranges from 2 to 10 units, with mean = 7.6, median = 7.5, and mode = 6. If the price rises to seven francs, then theory predicts that the demand should fall to 1 unit. The actual demand ranged from 0 to 6 units, with mean = 2.91, median = 3, and mode = 2. We find that the quantity demanded by subjects varies widely over the several trials of the game, though the mean demands are qualitatively consistent with equilibrium predictions.

Trends in demand. Figure 3 presents the running average for blocks of five trials. We find that both snobs and conformists evince a significant trend in demand when the price is low ($p < .01$), but not when the price is high ($p >$

Figure 2
DISTRIBUTION OF DEMAND

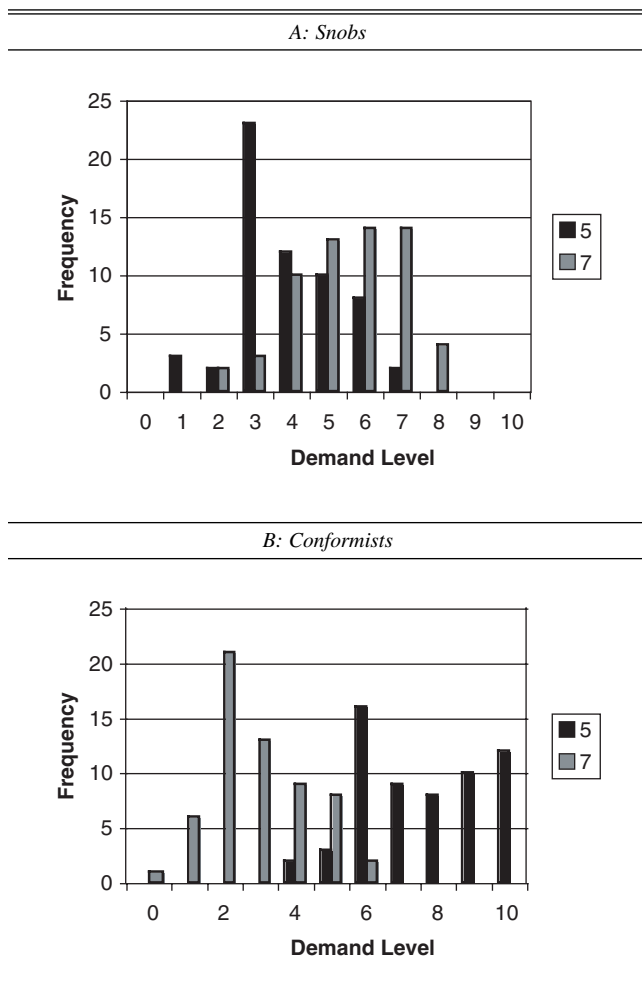
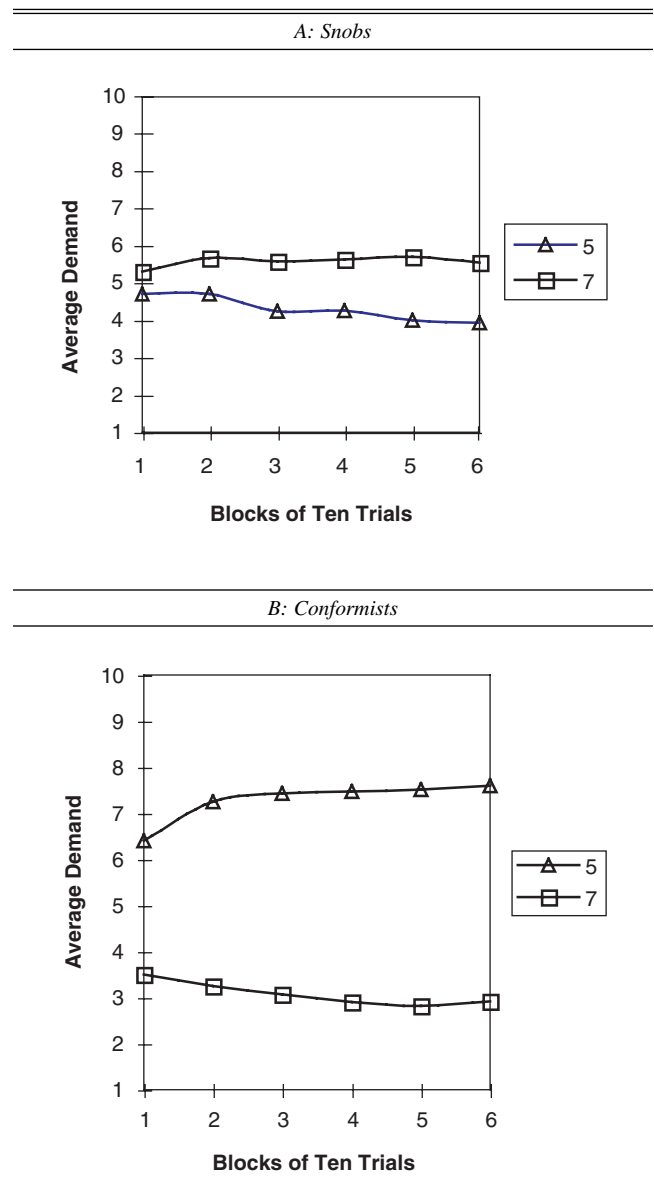


Figure 3
TRENDS IN DEMAND



.2).²⁵ Thus, the evidence for learning over the several replications of the experiment is mixed.

Variation by valuation. According to theory, each player should play a pure strategy. Figure 4 presents the number of trials in which the different Type A and Type B buyers purchased the product. Figure 4 presents the results collapsed over the two groups. It shows that subjects do not always play the same pure strategy, yet the overall demand pattern is directionally consistent with the model prediction. Thus, the empirical analysis lends support for the predictions of P_1 .

CONCLUSION

This article was motivated by a desire to understand the role of competition in the pricing of conspicuous goods. Toward this goal, we developed a model of duopoly that captures the spirit of consumer desire for uniqueness and conformism. The theoretical and empirical analysis addresses a few questions about conspicuous consumption.

First, what is the effect of consumer desire for uniqueness or conformity on the demand pattern for conspicuous goods? We show that in a market composed of snobs and conformists, demand among snobs could increase as the

price of a product increases. However, the demand among conformists, as well as the total market demand, would decrease as price rises. The intuition for this result is that snobs prefer a higher-priced product if they expect the overall demand to be lower at the higher price, and such an expectation will be rational only if the conformists have a downward-sloping demand curve. Therefore, in a market composed of either only snobs or only conformists the demand curve is downward sloping. Note that our result does not rely on signaling either product quality or wealth of consumers.²⁶

Consistent with our findings, Chao and Shor (1998) report that the demand for women's cosmetics increases as price increases in a subsegment of the market, though the overall demand curve has a downward slope. Moving beyond this correlational support, in the laboratory study we find that more snobs buy a product as its price increases. Thus, our findings offer a potential explanation for the upward-sloping demand curve in marketing textbooks (e.g., Berkowitz, Kerin, and Hartley 2000; Boone and Kurtz 1999; Perreault and McCarthy 2000).

Second, how does consumer desire for uniqueness or conformity affect firms prices and profits? In a duopoly, the desire for uniqueness leads to higher prices and profits. The intuition for this result is as follows: As the price of a product falls, it attracts more buyers and thereby makes the product less appealing to the snobs. Therefore, firms are less inclined to cut prices as snobbishness increases. The resultant softening in price competition increases firm profits. In contrast, conformism encourages price competition and thus reduces firm profits.

Third, do consumers buy high-quality products because of their desire for uniqueness? It is commonly believed that snobs buy high-quality products at high prices. In contrast to this perception, we find that when snobbishness is sufficiently large, snobs might buy a low-quality product. However, if snobbishness is low and snobs have a strong preference for quality, we might observe them buying high-quality products. Thus, snobs purchase high-quality products *despite* snobbishness and not *because* of it.

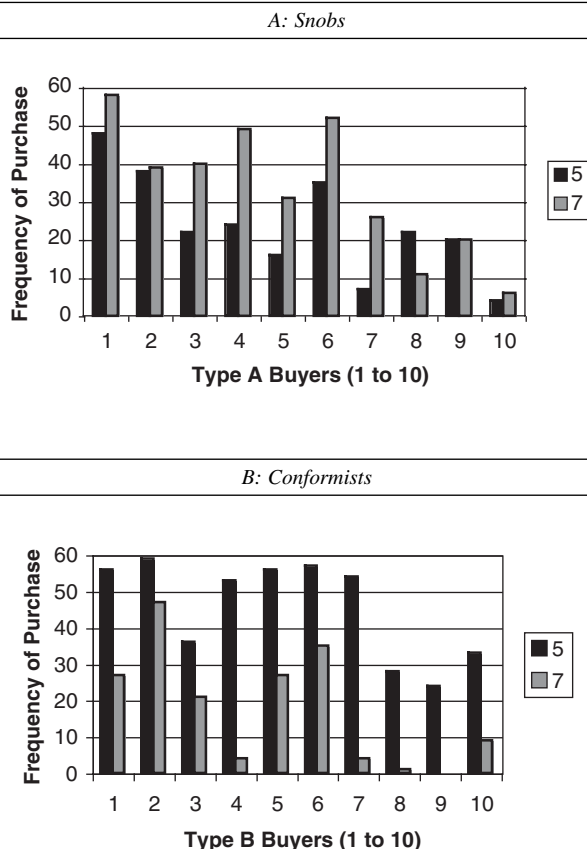
Fourth, what should the communication focus be for marketing conspicuous products? Contrary to some of our intuitions, we find that increased perceived functional differentiation of conspicuous products may reduce equilibrium prices and profits. Therefore, it might be profitable for managers to focus their communications efforts on emphasizing the exclusivity of their products rather than the functional differences. Indeed, this is consistent with the advertising for luxury products in magazines such as *Vogue*.

Limitations and Directions for Further Research

In developing the theoretical model, we made several assumptions, and further research could examine the implications of relaxing these assumptions. For example, the theoretical model is a single-period game. Because producers of conspicuous goods typically make multiple pricing decisions over a long time horizon, it would be useful to investigate how social effects influence firms' pricing policies over time. For example, increased sales in earlier periods are likely to decrease the demand in the later periods if

²⁵The analysis of variance results when the price is five francs are as follows: snobs: $F_{(5, 20)} = 4.54, p < .01$; conformists: $F_{(5, 20)} = 6.28, p < .01$.

Figure 4
VARIATION IN PURCHASE OF PRODUCT 1



²⁶An explanation based on signaling status cannot account for an upward-sloping demand curve for snobs (see Corneo and Jeanne 1997).

there is any snobbishness in the market. Conversely, conformism could increase demand in later periods. Further research can use a framework, as do Cabral and Villas-Boas (2002), to examine such a dynamic game.²⁷ Next, our theoretical analysis focused on one marketing-mix variable, price. In practice, product design, advertising, and promotion play important roles in the marketing of conspicuous products. Extending the model to accommodate these additional marketing-mix variables is another avenue for further research.

From a behavioral standpoint, the model relies on some strong assumptions. The rational-expectations assumption implies that subjects should reach the equilibrium in the first trial of the game. In our data, we find trends in the demand pattern of our subjects that imply that subjects may have learned to conform to the equilibrium solution. This raises another question: What type of adaptive learning dynamics could lead to the equilibrium behavior predicted by the rational-expectations framework? For example, it is not clear what class of adaptive learning mechanism (e.g., belief learning, reinforcement learning) could lead consumers to behave according to the theoretical predictions (for discussions of learning in games, see Amaldoss and Jain 2002, 2004; Camerer and Ho 1999; Roth and Erev 1995). Further research could examine this issue. Another fruitful avenue of research would be to test the model predictions by means of field data on consumption of conspicuous goods.

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²⁷We conjecture that in the dynamic analysis, consistent with the results from our static game analysis, snobbishness will increase firms' profits, and conformism will have the opposite effect. However, note that the result will not hold if we consider a monopoly, because the monopoly effect for the case of conformism is positive (see Amaldoss and Jain 2004). The strategic effect, however, is negative and outweighs the positive monopoly effect. Cabral and Villas-Boas (2002) refer to this phenomenon as the Bertrand supertrap.

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