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**Competition between Incumbents and Copycats under Conspicuous
Consumption when Consumers are Strategic**

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Competition between Incumbents and Copycats under Conspicuous

Consumption when Consumers are Strategic

Abstract

This paper examines the competition between incumbents and copycats in a market with consumers who exhibit both strategic purchasing behavior and conspicuous consumption behavior. To explore the interactive effects of these two types of behavior on the decision making of both firms, we develop a two-period model in which an incumbent sells a status product over two periods, and a copycat makes a market-entry decision and associated pricing strategy for the second period. All consumers have two types of utility, namely, intrinsic consumption utility and status utility. Our analysis suggests that it is optimal for the incumbent to adopt a high-price selling strategy in both periods when strategic consumers' patience is higher than a particular threshold, and a low-price selling strategy otherwise. Interestingly, this threshold decreases with consumers' sensitivity to status utility. Second, the copycat's profit increase with strategic consumers' patience, whereas higher patience will amplify the negative effects of status preference on the copycat's profit. Finally, compared to the monopoly market situation, we show that an increase in consumers' sensitivity to social status helps soften the competition and reduce the incumbent's loss of profit.

Keywords: Conspicuous consumption; competition; incumbent; copycat; strategic consumers

1. Introduction

Increasingly consumers are engaging in conspicuous consumption of products such as cars and luxury products, which generally signal wealth and social status (Amaldoss and Jain, 2005). These products can grant status value to consumers and are usually referred to as status products (Li, 2018). The status-product industry is growing rapidly and it has become an important economic sector. A recent survey shows that the value of the personal luxury goods market worldwide reached 260 billion Euro in 2018 (Blazyte, 2019). LVMH, one of the leading enterprises for luxury brands in the world, achieved a total revenue of €46.8 billion in 2018 (Choi and Liu, 2019). [Despite the importance of luxury industries, it is commonly believed that firms in the luxury supply chains are challenged by copycat entry \(Wang et al., 2020\).](#) The relatively high profit margins associated with luxury products encourage many copycats to enter the market and sell imitation products, which causes substantial profit loss for incumbent firms and have become the bane of development for many firms. This is because incumbent firms have invested scarce capital to develop and market new products only to find cheap copies flooding the market (Pun and DeYong, 2017). For example, Apple incurred losses of more than \$2.5 billion in sales due to alleged infringement of its smartphone patents (Sakr, 2012). [The infringement war between Gucci and Guess lasted for nine years since 2009 when Guess launched a new line of shoes that was very similar to Gucci's classic trademark printing. However, Gucci failed to get the demanded compensation of US \\$221 million from Guess, but lost the diamond "G" logo patent](#)

instead¹.

On the other hand, the presence of copycats inevitably affects consumer purchasing behavior and thus leads to changes in market segments. As suggested by Wilcox et al. (2009), consumers are often ambivalent and may even prefer a copycat's products in some situations. In this regard, when anticipating copycat products entering the market, some consumers may strategically delay their purchase decisions to wait for imitation products to appear, and even switch to buy these products instead. Some copycats can deliver imitation products so quickly that they can satisfy the requirements of consumers who are eager to keep up with the latest trends. For example, the fashion retailer Zara is able to have entirely new products in stores within 15 days of the latest trends being revealed at a fashion show (Ferdows et al., 2004). This strategic consumer behavior dramatically affects the market dynamics, and can lead to reduced sales and profit margins for incumbent firms. Therefore, it is important for firms to take copycat entry and strategic consumer behavior into consideration when making their pricing decisions. Intuitively, a suitable price scheme such as offering price discounts may induce consumers to make purchases before copycat products become available. This in turn will influence the entry decisions, pricing strategies and sales of copycats.

Nowadays, consumers generally buy status products, especially those products of luxury brands (e.g., LV, Burberry and Apple), not only due to the products' intrinsic consumption values, but also due to the social benefits arising from conspicuous consumption (Rao and Schaefer, 2013). This is because conspicuous consumption will

¹ https://www.sohu.com/a/228912516_100130610.

bring consumers some pleasure by surpassing others in wealth or social status. In such a context, consumers are willing to pay a higher price for status products in pursuit of higher social status or to integrate with a certain group (Leibenstein, 1950). Therefore, status sensitive consumers will have more incentive to pay the highest price and enjoy the exclusivity of the product, in the sense that poorer individuals cannot afford the price. In this case, firms have to consider how to determine suitable prices to maintain the products' prestige. Specifically, when firms choose to lower the selling price to encourage more consumers to buy a product, it may reduce the high-end consumers' interest. This is why some high-end brands in the luxury fashion industry remove product tags before sending to discount retailers at the end of a selling season (Rosenbloom, 2010). [Considering that consumers are heterogeneous in their purchasing and consumption behavior, it is necessary for firms to incorporate such behavior into account when developing their competition strategies, which is the aim of this study.](#)

Overall, the considerations above raise the following pertinent research questions: (1) How do consumers' strategic purchasing behavior and conspicuous consumption behavior interactively affect the incumbent's pricing and competing strategies? (2) How do these consumer behaviors affect the copycat's entry decision and associated pricing strategy? (3) Compared to the monopoly market, how does the entry of the copycat affect the incumbent's strategies and profitability?

Despite the importance of competing strategies of incumbents and copycats in practice, the afore-mentioned issues have not been well-documented in prior studies. As a result, the primary goal of this paper is to fill this gap. To this end, we develop a

two-period model considering that an incumbent sells a new status product in the market over two periods, and a copycat decides whether or not to enter the market and what selling price to set in the second period. The market is composed of strategic and myopic consumers, both with two types of utility, namely, *intrinsic consumption utility* and *social status utility*.

Our analysis yields the following important findings and insights. *First*, when strategic consumers' patience is higher than a particular threshold, it is better for the incumbent to set high selling prices in both periods, which is counter-intuitive. In the face of copycats, one might expect the incumbent to set lower selling prices to induce strategic consumers to make purchases before imitation products become available. However, the lower selling price will also reduce the high-end *myopic* consumers' status utility and thus their desire to purchase the product. In such a case, the incumbent will choose to adopt a high-price selling strategy to maintain myopic consumers' status utility and allow strategic consumers to delay their purchases to the second period. Notably, we also find that this threshold decreases with consumers' sensitivity to status utility, which indicates that when consumers are more sensitive to status utility, the incumbent is more likely to adopt the high-price selling strategy. This observation explains why some high-end brands in the luxury fashion industry destroy unwanted stock to prevent their clothes being sold at knockdown prices. According to the British fashion house's annual reports, Burberry destroyed \$38 million worth of extra stock in 2018 (Donnelly, 2018).

Second, we show that strategic consumer behavior has a double-edged effect on

the copycat. On the one hand, the copycat's profit increases with strategic consumers' patience. On the other hand, when strategic consumers are more patient, it will increase the negative effects of status preference on the copycat's profit. This is because when more consumers with relatively high valuations strategically delay their purchases until the second period, it will increase consumers' status utility of purchasing the incumbent's product in period 2, which in turn harms the copycat's profit.

Notably, the copycat's entry decision follows a threshold strategy with respect to both consumers' sensitivity to status utility and the copycat's product quality. When consumers are less sensitive to status utility or the copycat's product quality is relatively low, it is more likely for the copycat to enter the market successfully. Furthermore, when the copycat's product quality is higher than a particular threshold, both the incumbent and the copycat's profits are reduced, thus creating a "lose-lose" situation.

Finally, compared to the monopoly market, the entry of the copycat may lower the incumbent's profit, while an increase in consumers' sensitivity to social status can help soften the competition and reduce the incumbent's loss of profit. This finding suggests that, to effectively counteract the negative impacts of copycats, incumbents should devote efforts to build their brand identity and enhance consumer recognition.

The remainder of this paper is organized as follows. In the next section, we review the most relevant literature. In Section 3, we present our theoretical models. Section 4 examines the optimal decisions on prices for the incumbent and the copycat as well as the interactive effects of these two behaviors on profits. We present the difference between the monopoly and competitive markets in Section 5. Finally, conclusions

appear in Section 6. All proofs are provided in the Appendix.

2. Literature Review

Our research is related to the broad work on conspicuous consumption, and competition between incumbents and entrants. We will review the most relevant studies in this section.

Studies on consumer motivations, behaviors and preferences with respect to conspicuous consumption in the literature are increasing. The extant studies show that conspicuous consumption of luxury products can serve as a signal of wealth and social status (e.g., Amaldoss and Jain, 2005; Shen et al., 2017). Dreze and Nunes (2009) find that the desire for status is an important force driving the market for luxury products. Geiger-Oneto et al. (2013) further point out that status seeking has been demonstrated to be a universal behavior. Such status seeking behavior will directly influence consumer status preferences. Consumer preferences for status and luxury brands usually lead to consumption externalities which indicate that the value of a product to an individual consumer is dependent on the valuation and purchases of others. In particular, Leibenstein (1950) first proposed the Veblen effect, which implies that consumers are willing to pay a higher price for products to signal higher social status or integrate into a particular group. Amaldoss and Jain (2005) term a typical group of consumers as snobs, who prefer exclusivity and uniqueness, and find that this type of consumer utility decreases in the number of buyers and increases in the number of non-buyers. By classifying consumers into two groups (namely fashion leaders and fashion

followers), Zheng et al. (2012) explore the optimal pricing and advertising decisions for a luxury fashion brand, and derive the conditions under which it is optimal for the luxury fashion brand to focus its advertising effort on just one group or both. Chiu et al. (2018) and Choi and Liu (2019) further explore the optimal customer portfolios and budget allocation for a luxury firm serving a conspicuous market consisting of two interactive groups of consumers. By classifying consumers as either snobs or conformists, Zhang et al. (2020) consider a luxury supply chain in which a manufacturer sells products to consumers through a retailer. Following these studies, Rao and Schaefer (2013) analytically propose a framework to model consumer utilities regarding conspicuous consumption by considering consumer status preferences. Zhou et al. (2018) evaluate the firm's pricing and production decisions when conspicuous consumers exhibit discount sensitivity behavior.

Due to the rapid development and wide applications of new information technologies, various business models have come into being. Specifically, Yuan and Shen (2019) do a pioneering work in examining the fashion rental behavior. Choi (2019) highlights the values of blockchain technology supported platforms for diamond authentication and certification in a distribution supply chain. Wei and Li (2020) investigate how conspicuous behavior and concerns of stock availability influence a luxury firm's operational decisions in the context of omnichannel retailing. Notably, the above studies mainly focus on consumer status preferences under various backgrounds in the monopoly market environment. Several studies have further considered the competition between incumbents and copycats under the context of

conspicuous consumption. Specifically, Amaldoss and Jain (2015) explore how social effects and market competition influence the branding decision for conspicuous products. Gao et al. (2017) explore optimal pricing decisions of incumbents and optimal entry and pricing decisions of copycats. Li (2018) focuses on investigating the optimal decision of an incumbent's vertical line extensions when facing a threat of entry, and shows that status preferences can increase the difference between vertically differentiated products and reduce the intra-firm cannibalization. Sun et al. (2020) develop an analytical framework to investigate the interactions among an online marketplace, an authentic brand seller and a counterfeiter of the brand. Unlike these studies, in addition to consumer status preferences, we attempt to examine the competing strategies regarding pricing decisions and entry of copycats by further considering the presence of strategic consumers.

In recent years, the competition between incumbents and entrants has received extensive attention in the literature. The extant studies mainly focus on examining the competing strategies of incumbents and entrants, e.g., entry-deterrence strategies (Lee et al., 2001), pricing strategies (Varella et al., 2017), quality decisions (Qian et al, 2015), investment decisions (Mason and Weeds, 2010), service capacity allocation schemes (Zhang and Mesak, 2010). Nevertheless, these studies have not addressed these issues regarding conspicuous consumption and strategic consumer behaviors. More recently, under the context of conspicuous consumption, Gao et al. (2017) identify the conditions under which the copycats can gain successful market entry. Pun and DeYong (2017) examine the manufacturer's optimal advertising investment and pricing strategy when

the copycat free rides on the brand manufacturer's investment. Du et al. (2018) examine how strategic consumers influence product strategies and market demands of an innovative firm. These two works have examined competing strategies between incumbents and copycats but have not taken conspicuous consumption behavior into account.

Our paper attempts to examine the competing strategies of incumbents and copycats by incorporating the interactive effects of strategic purchasing and conspicuous consumption behaviors. Gao et al. (2017) and Pun and DeYong (2017) are the studies that are most relevant to our work. Our work differs from these two studies in the following aspects. *First*, different from Gao et al. (2017), we highlight the impact of strategic consumer behavior and examine the incumbent's *dynamic* pricing strategies by developing a two-period intertemporal model. *Second*, unlike Pun and DeYong (2017) who examine the market advertising strategies for incumbents when consumers are strategic, our work focuses on the competing strategies for incumbents under the context of conspicuous consumption. To the best of our knowledge, this paper is the first to study the competition between incumbents and copycats by considering the interactive effects of strategic purchasing and conspicuous consumption behaviors.

3. Models

Consider an incumbent I who sells a conspicuously consumed status product to consumers in a market over two periods ($t=1,2$), and a copycat C who is capable of producing a low-quality version of the product. At the beginning of period 1, the

incumbent launches a new product of intrinsic quality q_I (normalized to 1) at a selling price p_{I1} . Upon observing the incumbent's price p_{I1} in the first period, the copycat then decides whether or not to enter the market at the beginning of period 2. If the copycat chooses to enter, it sells a copycat product which is vertically differentiated from the incumbent's product with intrinsic quality q ($q \in (0,1)$) at a selling price p_C . Following Pun and DeYong (2017), we assume there is no fixed cost for production and that unit production costs are normalized to zero. Accordingly, the incumbent chooses selling prices for the two periods; and the copycat decides on market entry and, if entering, its selling price in period 2. To examine the optimal decisions of the firms, we assume that both firms are rational and self-interested. Notation used in this study is summarized in Table 1.

{Insert Table 1 here}

All consumers are present in the market at the beginning of period 1, and the total market size is normalized to 1. Consumers are assumed to purchase no more than one unit of product, and they will leave the market once they have purchased a product (Pun and DeYong, 2017). We assume that consumers are naturally heterogeneous in their purchasing behavior, and thus the market is composed of a proportion α ($\alpha \in [0,1]$) of strategic consumers and a proportion $1 - \alpha$ myopic consumers. In particular, strategic consumers make *intertemporal* purchasing decisions to maximize their utilities, whereas myopic consumers make their purchasing decisions by evaluating only the options that are available in the *current* period. That is, at the beginning of period 1, with the goal of maximizing their utilities, strategic consumers rationally decide

whether or not to buy products, when to buy products (i.e., period 1 or period 2), and for those choosing to make purchases in period 2, which product to buy (i.e., the incumbent's product or the copycat's product). However, myopic consumers decide whether or not to buy products in period 1 by comparing the utility of buying from the incumbent with that of buying nothing. Any consumers not purchasing products in period 1 will stay in the market to enter period 2, by which time the purchasing behaviors of strategic and myopic consumers are the same since there is no future period (Pun and DeYong, 2017).

The sequence of decision is as follows. *First*, at the beginning of period 1, the incumbent determines its selling price p_{I1} in anticipation of the entry of the copycat. *Second*, at the beginning of period 2 after observing the incumbent's selling price in period 1, the copycat decides whether or not to enter the market. *Third*, if the copycat chooses to enter the market, both firms simultaneously determine their selling prices p_{I2} and p_C in period 2; otherwise the incumbent determines its selling price p_{I2} .

3.1. Consumer Utility

Consumer utility is assumed to be composed of two parts: the *intrinsic consumption utility* and the *status utility* (Rao and Schaefer, 2013; Gao et al., 2017; Li, 2018). The *intrinsic consumption utility* refers to the utility brought by consuming the product's functional quality. Meanwhile, conspicuous consumption of status products signals consumers' wealth and status, thereby providing *status utility* of consumption. To derive consumer utility function, following Li (2018) and Gao et al. (2017), we

assume that each consumer i has wealth v_i , which corresponds to the consumer's social status. It is also assumed that consumer wealth is heterogeneous and uniformly distributed over $[0,1]$, i.e., $v_i \sim U[0,1]$.

Unlike myopic consumers, strategic consumers make *intertemporal* purchasing decisions to maximize their utilities over the two periods. Following related studies (e.g., Cachon and Swinney, 2009), we assume that a strategic consumer's intrinsic utility of future consumption is discounted at a rate of δ ($\delta \in (0,1)$) over time. Thus the parameter δ represents the opportunity cost of delaying purchase and may also be interpreted as the degree of strategic consumers' patience such that a small δ represents the scenario where strategic consumers are very impatient and would have low consumption utility if purchase is postponed until period 2 (Pun and DeYong, 2017).

3.1.1. Intrinsic Consumption Utility

A consumer's willingness to pay for a product of certain quality is assumed to be proportional to the individual's wealth level (Gao et al., 2017). A consumer with wealth v_i can obtain lifetime intrinsic utility from consumption of a product of quality q_l ($l=I$ or C) amounting to $v_i q_l$. Hence, a myopic consumer with wealth v_i purchasing a product of quality q_l at a price p_l from the incumbent in period t can obtain a net intrinsic utility $v_i q_l - p_l$ ($t=1$ or 2). Similarly, if this myopic consumer buys a product of quality q_C at a price p_C from the copycat in period 2, the net intrinsic utility is then expressed as $v_i q_C - p_C$.

Similar to myopic consumers, when a strategic consumer with wealth v_i purchases the product from the incumbent in period 1, the net intrinsic utility is $v_i q_I - p_{I1}$. If this

consumer chooses to wait to buy products from the incumbent or the copycat in period 2, the net intrinsic utility will be $\delta(v_i q_I - p_{I2})$ or $\delta(v_i q_C - p_C)$, respectively.

3.1.2. Status Utility

In addition to providing *intrinsic consumption utility*, status products also signal the owner's social status, and thus offer consumers some *status utility*. The status utility of a product is mainly determined by the wealth and status of all consumers who buy the product, regardless of whether they are myopic or strategic (Li, 2018). Following Rao and Schaefer (2013), we assume that the status utility arising from the purchase of the incumbent's product is related to the average wealth of all consumers who buy the product. Similarly, following Gao et al. (2017), we assume that consumers who do not buy the incumbent's product (i.e. who buy the copycat's product or do not buy either product) share the same status utility which is related to the average wealth of such consumers.

Define \bar{w}_t (\bar{w}_t) to be the average wealth of consumers who purchase (do not purchase) the incumbent's product by the end of period t ($t = 1, 2$). Since myopic consumers always ignore intertemporal considerations when making purchase decisions, their status utility derived from buying the incumbent's product in period t is $\lambda \bar{w}_t$ where parameter λ ($\lambda \in (0,1)$) represents consumers' sensitivity to status utility. Similarly, if myopic consumers do not make any purchases in period t , they will obtain a status utility of $\lambda \bar{w}_t$. As strategic customers consider both periods when making purchasing decisions, their status utility depends on the purchasing behavior of consumers in both periods. Similar to Rao and Schaefer (2013), we define the status

utility of strategic consumers who purchase the incumbent's product in period 1 to be $(1-\delta)\lambda\bar{v}_1 + \delta\lambda\bar{v}_2$ where the first term represents the status utility arising from the initial consumption in period 1, and the latter term captures the effect of consumption by consumers in period 2. Obviously, less wealthy consumers' purchases in period 2 reduce the overall status utility enjoyed by early consumers. When strategic consumers delay the purchase of the incumbent's product until period 2, their status utility is determined by the status of non-buyers in period 1 and that of buyers in period 2. It follows that their status utility can be written as $(1-\delta)\lambda_1\bar{w}_1 + \delta\lambda\bar{v}_2$. Finally, when strategic consumers do not buy the product in period 1, and choose to buy the copycat's product or not to buy any product in period 2, their status utility is formulated as $(1-\delta)\lambda_1\bar{w}_1 + \delta\lambda\bar{w}_2$.

3.1.3. Total Utility

To account for both intrinsic consumption and status benefits obtained from consuming status products, consumer total utility is defined as the sum of intrinsic consumption utility and status utility. According to the intrinsic and status utility described above, $u_{I1}^m - u_{N1}^m = v_i q_I - p_{I1} + \lambda(\bar{v}_1 - \bar{w}_1)$ which increases monotonically in v_i , so there exists a unique value v_1^m such that myopic consumers with wealth level $v_i \in [v_1^m, 1]$ will buy the incumbent's product in period 1, whereas the remaining myopic consumers with wealth level $v_i \in [0, v_1^m)$ will remain in the market. Similarly, it can be shown that $u_{I1}^s - \max\{u_{I2}^s, u_C^s, u_{N2}^s\}$ also increases monotonically in v_i , so the behavior of strategic consumers in period 1 can be described by a threshold policy with a unique threshold wealth level v_1^s . That is, strategic consumers with wealth level $v_i \in [v_1^s, 1]$

will buy the incumbent's product in period 1, whereas the remaining strategic consumers with wealth level $v_i \in [0, v_1^s)$ will remain in the market. It follows that $\bar{v}_1 = \alpha \lambda \frac{1+v_1^s}{2} + (1-\alpha) \lambda \frac{1+v_1^m}{2}$ where the term $\frac{1+v_1^s}{2}$ ($\frac{1+v_1^m}{2}$) represents the average wealth level of strategic (myopic) consumers purchasing the incumbent's product in period 1. In the same way, $\bar{w}_1 = \alpha \lambda \frac{v_1^s}{2} + (1-\alpha) \lambda \frac{v_1^m}{2}$ where the term $\frac{v_1^s}{2}$ ($\frac{v_1^m}{2}$) represents the average wealth level of strategic (myopic) consumers who do not purchase in period 1.

Regarding purchasing decisions in period 2, $u_{I2}^s - \max\{u_C^s, u_{N2}^s\} = \delta(u_{I2}^m - \max\{u_C^m, u_{N2}^m\})$ increases monotonically in v_i , so there exists a unique value v_2 such that strategic consumers remaining in the market with wealth level $v_i \in [v_2, v_1^s)$ and myopic consumers remaining in the market with wealth level $v_i \in [v_2, v_1^m)$ will buy the incumbent's product in period 2. It follows that $\bar{v}_2 = \lambda \frac{1+v_2}{2}$ where the term $\frac{1+v_2}{2}$ represents the average wealth level of consumers purchasing the incumbent's product in both periods. In the same way, $\bar{w}_2 = \lambda \frac{v_2}{2}$ where the term $\frac{v_2}{2}$ represents the average wealth level of consumers who do not purchase in both periods. For remaining consumers, from $u_C^s \geq u_{N2}^s$ and $u_C^m \geq u_{N2}^m$, we can obtain the indifference point v_{C2} such as both strategic and myopic consumers with wealth level $v_i \in [v_{C2}, v_2)$ will buy from the copycat in period 2, whereas those with wealth level $v_i \in [0, v_{C2})$ will not purchase any product.

According to market segments and the corresponding consumer utilities described above, we can derive the utility functions of both myopic consumers and strategic consumers, which are summarized in Table 2.

{Insert Table 2 here}

Note that, when consumers do not buy any product in any period, they only obtain some status utility and their intrinsic consumption utility is zero.

3.2. Demand Functions and Models

In general, consumers decide whether to buy the product or when to buy the product depending on whether the choice can lead to a higher utility. Based on the values of the indifference points, we can derive the demand functions for both firms, which are summarized as follows.

$$d_{I1} = \alpha(1 - v_1^s) + (1 - \alpha)(1 - v_1^m) \quad (3.1)$$

$$d_{I2} = \alpha(v_1^s - v_2) + (1 - \alpha)(v_1^m - v_2) \quad (3.2)$$

$$d_C = v_2 - v_{C2} \quad (3.3)$$

Fig.1 provides a graphical illustration for the market segments.

{Insert Fig. 1 here}

According to the demand functions described above, we can formulate both firms' profit-maximizing models, i.e.,

$$\pi_I^* = \max_{p_{I1}} \{p_{I1}d_{I1} + \pi_{I2}^*(p_{I1})\} \quad (3.4)$$

$$\pi_C^* = \pi_C^*(p_{I1}) = \max_{p_C} \pi_C(p_{I1}, p_{I2}, p_C) = \max_{p_C} \{p_C d_C\} \quad (3.5)$$

Note that model (3.4) and model (3.5) represent the profit-maximizing problems for the incumbent and the copycat, respectively. $\pi_{I2}^*(p_{I1})$ is the incumbent's equilibrium profit in the second period, which is obtained from the following model:

$$\pi_{I2}^*(p_{I1}) = \max_{p_{I2}} \pi_{I2}(p_{I1}, p_{I2}, p_C) = \max_{p_{I2}} \{p_{I2}d_{I2}\}. \quad (3.6)$$

4. Competing Strategies of the Incumbent and the Copycat

Competition arises when the copycat enters the market. Since our focus in this section is the competition between the incumbent and the copycat, in the following we confine our analysis to the situation when the copycat enters the market. We obtain the optimal solution by applying backward induction. In period 2, the copycat makes its entry decision, and if it enters, both firms set their prices to maximize the profits generated from the remaining consumer segments $v \sim [0, v_1^k)$ ($k = s, m$). The optimal pricing decisions of the incumbent and the copycat are presented in Table 3.

{Insert Table 3 here}

Table 3 shows that the incumbent is better off adopting a threshold pricing strategy, and that the threshold is dependent on strategic consumers' patience. Following Table 3, we further obtain the following findings.

Proposition 1. (a) There exists a threshold δ^* such that both the incumbent and the copycat's optimal prices under the case when $\delta \leq \delta^*$ are lower than those when $\delta > \delta^*$.

(b) The incumbent's first-period selling price is higher than its second-period selling price regardless of the value of δ .

Proposition 1(a) suggests that when strategic consumers are less patient, it is beneficial for the incumbent to adopt a low-price selling strategy. In this case, both

strategic and myopic consumers will make purchases in both periods, and thus the incumbent can benefit from adopting a low-price selling strategy to entice more consumers to buy products in both periods. In contrast, when strategic consumers are patient enough ($\delta > \delta^*$), all strategic consumers will delay their purchases until period 2. Thus, the incumbent will use a high-price selling strategy to improve the status of the product and charge myopic consumers a high price in period 1. When strategic consumers are substantially patient and delay their purchases until period 2, both firms have more motivation to increase their selling prices in period 2 since there is no further period for strategic consumers to delay their purchases. This finding coincides with that presented in Pun and DeYong (2017), which shows that the incumbent may be worse off when consumers are more likely to purchase immediately.

Proposition 1(b) shows that the incumbent always benefits from adopting a *price skimming strategy* over the two periods (i.e., $p_{I1}^* > p_{I2}^*$). This is partly due to the fact that consumption of a high price product signals higher status and higher wealth. At the same time, consumers in the first period can use the product longer and enjoy higher status when relatively few consumers own the new product in period 1. In addition to the impact of status signal, the presence of the copycat also forces the incumbent to reduce the selling price in period 2 to gain competitive advantages.

The copycat's entry decision is dependent on the market condition, which is formally stated by the following proposition.

Proposition 2. When $\delta \leq \delta^*$ and $0 < \lambda \leq \min\{\lambda_1, 1\}$, or $\delta > \delta^*$ and $0 < \lambda \leq \min\{\lambda_2, 1\}$,

the copycat will enter the market; otherwise, the copycat will stay out of the market,

$$\text{where } \lambda_1 = \frac{2(1-q)((4-q)(1-\delta) + 2(1-q)\alpha\delta)}{8-3q+q^2-2(4-\alpha)\delta+(3-q)q(1-\alpha)\delta} \quad \text{and} \quad \lambda_2 = \frac{2(4-q)(1-q)(1+\alpha)}{8-q(3-q(1-\alpha)-\alpha)}.$$

Proposition 2 shows that, regardless of whether $\delta \leq \delta^*$ or $\delta > \delta^*$, when consumers are not overly sensitive to status utility, it is profitable for the copycat to enter the market; otherwise, the copycat is better off staying out of the market. To be specific, when consumers are sufficiently sensitive towards social status, they prefer to purchase the incumbent's product and the copycat should not enter the market. Furthermore, it is easy to show that both the thresholds λ_1 and λ_2 decrease with q . This suggests that when the copycat's product quality is lower, the copycat has more chance to successfully enter the market. This is because the relatively low product quality can help differentiate the market, and thus the copycat can gain profit from the low-end consumers. Fig.2 provides a graphical illustration regarding the copycat's entry decision with $\alpha=0.75$ and $q=0.5$.

{Insert Fig. 2 here}

Fig.2 shows that, when $\delta \leq \delta^*$ and $\lambda \leq \lambda_1$ (Area I), or $\delta > \delta^*$ and $\lambda \leq \lambda_2$ (Area II), the copycat can successfully enter the market; otherwise (Areas III and IV), the copycat will stay out of the market.

Note that the conditions $0 < \lambda < \min\{\lambda_1, 1\}$ and $0 < \lambda < \min\{\lambda_2, 1\}$ can also be transformed into $\max\{0, \alpha_1\} \leq \alpha \leq 1$ and $\max\{0, \alpha_2\} \leq \alpha \leq 1$, respectively, with

$$\alpha_1 = \frac{(1-\delta)(-2(4-q)(1-q) + (8-(3-q)q)\lambda)}{(1-q)\delta(4+q(-4+\lambda)-2\lambda)} \quad \text{and} \quad \alpha_2 = \frac{(8-(3-q)q)\lambda - 2(4-q)(1-q)}{(1-q)(8-q(2+\lambda))}.$$

This indicates that when the proportion of strategic consumers in the market is

sufficiently high, it is profitable for the copycat to enter the market. This is intuitive because, when the proportion of strategic consumers is sufficiently low, there are few consumers waiting to make purchases in period 2, and thus the copycat has less chance to gain sufficient profit when entering the market.

Notably, the threshold δ^* is also closely related to the conspicuous consumption parameter (λ). We first consider the special case when all consumers are strategic ($\alpha = 1$) to illustrate the impact, which is summarized as follows.

Proposition 3. When $\alpha = 1$, the threshold δ^* decreases with λ .

Interestingly, Proposition 3 and Proposition 1(a) show that, when consumers are more sensitive to status utility, the incumbent is more likely to adopt a high-price selling strategy. The reason is that when consumers enjoy high status, they are willing to pay a high price for the product. It is noteworthy that, we have further used some numerical examples to examine the relationship between δ^* and λ in the case when $\alpha < 1$. Fortunately, we find that the results are consistent with those in the case when $\alpha = 1$. When consumers are more sensitive to status, the incumbent obtains higher profit from the myopic consumers in period 1.

Next, we examine the effects of consumer behavior on the two firms' optimal profits, which are formally stated in Proposition 4.

Proposition 4. (a) There exists a unique $\hat{\delta}$ such that $\frac{\partial^2 \pi_1^*}{\partial \delta \partial \lambda} < 0$ if $0 < \delta \leq \hat{\delta}$, and

$$\frac{\partial^2 \pi_I^*}{\partial \delta \partial \lambda} > 0 \text{ if } \hat{\delta} < \delta \leq \delta^*. \text{ If } \delta > \delta^*, \text{ then } \frac{\partial^2 \pi_I^*}{\partial \delta \partial \lambda} = 0.$$

$$(b) \text{ If } \delta \leq \delta^*, \frac{\partial^2 \pi_C^*}{\partial \delta \partial \lambda} < 0; \text{ if } \delta > \delta^*, \frac{\partial^2 \pi_C^*}{\partial \delta \partial \lambda} = 0.$$

Interestingly, [Proposition 4\(a\)](#) shows that, if strategic consumers' patience is low, the interaction between λ and δ has a negative (positive) cross effect on the incumbent's profit. The reason is that, when δ is small (i.e., $0 < \delta \leq \hat{\delta}$), consumers have less patience to wait until period 2 and care more about the status utility they gained in period 1. When δ is moderate (i.e., $\hat{\delta} < \delta \leq \delta^*$), consumers have more patience to delay their purchases and care more about the status utility in period 2. Hence as shown in [Table 2](#), consumers' status utility in period 1 decreases with δ and their status utility in period 2 increases with δ . Thus when δ is lower (higher) than the threshold $\hat{\delta}$, the interaction between δ and λ has a negative (positive) cross effect on consumers' total status utility.

Similarly, when $\delta \leq \delta^*$, the interaction between λ and δ has a negative cross effect on the copycat's profit, which suggests that higher consumer patience (δ) amplifies the negative effect of status preference (λ) on the copycat's profit. This is because as δ increases, more consumers with relatively high valuations will delay their purchases until period 2, which increases consumers' status utility in period 2. As a result, more consumers will choose to purchase from the incumbent to gain a high-status utility, which in turn harms the copycat's profit. Note that when $\delta > \delta^*$, the interaction between λ and δ has no cross effect on the two firms' profits since consumers in period 2 will not exhibit strategic behavior.

It is noteworthy that, the copycat's product quality is also closely related to the optimal prices of both firms, and thus to their profits. By examining the effects of q on both firms' profits, we have the following findings.

Proposition 5. When $\alpha=1$ and $\delta > \delta^*$, there exists a unique \hat{q} such that when $q \leq \hat{q}$, the incumbent's (copycat's) profit decreases (increases) with q ; however, when $q > \hat{q}$, both the incumbent's and the copycat's profits decrease with q .

Proposition 5 shows that, in the special case when all consumers are strategic and delay their purchases until period 2 ($\alpha=1$ and $\delta > \delta^*$), as the copycat's product quality increases, the incumbent will suffer a loss from the competition, and the copycat's profit will also decrease when $q > \hat{q}$. This is because when the copycat's product quality is sufficiently low, the incumbent can obtain a relatively high profit due to the quality differentiation. However, when the copycat's product quality is extremely high, it will lead to intensive competition between the incumbent and the copycat, which will reduce the profits of both parties. This result indicates that if the copycat improves its product quality blindly, it might cause a "lose-lose" situation.

When $\alpha < 1$, it is difficult to examine the impact of the copycat's quality on both parties' profits analytically. In this case, we consider numerical examples with $\alpha=0.5$; $\delta=0.5$ and 0.8 ; and $\lambda = 0.25, 0.5$ and 0.75 . Notably, as formulated in the proof of Theorem 2, δ^* is a function of the copycat's product quality. For example, when $\alpha=0.75$, $\delta=0.5$, $\lambda=0.25$ and $q=0.5$, we can obtain that $\delta^* \approx 0.707$.

{Insert Fig. 4 here}

{Insert Fig. 5 here}

The results in Figs. 4 and 5 show that, when the copycat's quality is sufficiently high (e.g., $q > 0.553$ when $\delta = \lambda = 0.5$, or $q > 0.672$ when $\delta = 0.8$ and $\lambda = 0.5$), the copycat will choose not to enter the market. When the copycat enters the market, the incumbent's profit always decreases with the copycat's product quality, and the copycat's profit may also decrease with its product quality when its product quality is relatively high. These findings are consistent with those in Proposition 6. Counter-intuitively, Figs. 4 and 5 also show that, when consumers are more sensitive to status utility, the copycat should be more cautious about entering the market. If entering, the copycat should reduce its product quality to further differentiate the market segments in order to survive in the market. These findings are interesting and can be illustrated by Corollary 1, which shows the effect of status preference on the threshold \hat{q} .

Corollary 1. When $\alpha=1$ and $\delta > \delta^*$, $\frac{\partial \hat{q}}{\partial \lambda} < 0$.

Corollary 1 shows that in the special case when all consumers are strategic and delay their purchases until period 2 ($\alpha=1$ and $\delta > \delta^*$), the threshold \hat{q} decreases with λ . That is, when consumers are more sensitive to social status, the copycat would be better to enter the market with lower quality. This is because when consumers enjoy higher status, the incumbent will target high-end consumers, and the copycat has to provide a product with lower quality to explore the lower-end of the market.

5. Monopoly vs. Competition

In this section, we further examine the effect of copycat entry on the incumbent's profitability. To analyze this effect, we define a benchmark scenario where the incumbent serves the market as a monopolist (i.e., there is no copycat in the market). For ease of notation, we use the superscript "b" to denote this scenario. The optimal pricing decisions for the incumbent over two periods and associated conditions are summarized in Table 4.

{Insert Table 4 here}

Let $\Delta\pi_I$ denote the difference in the incumbent's profits between the monopoly and competitive markets (i.e., $\Delta\pi_I = \pi_I^{b*} - \pi_I^*$), then we have the following findings.

Proposition 6. When $\delta \leq \delta^*$ (or $\delta > \delta^*$), there exists a threshold $\bar{\lambda}_1$ (or $\bar{\lambda}_2$) such that, if $0 \leq \lambda \leq \max\{0, \bar{\lambda}_1\}$ (or $0 \leq \lambda \leq \max\{0, \bar{\lambda}_2\}$), $\frac{\partial \Delta\pi_I}{\partial \lambda} \geq 0$; otherwise, $\frac{\partial \Delta\pi_I}{\partial \lambda} < 0$.

Proposition 6 shows that, when consumers are sufficiently sensitive to social status, the difference in the incumbent's profits between the monopoly and competitive markets will gradually decrease with consumers' sensitivity to status utility (λ). This result indicates that the status preference can help soften the competition and reduce the loss of the incumbent's profit, except when consumers are extremely insensitive towards social status.

To illustrate the impact of λ on the profit difference, we consider numerical examples with $q=0.5$, $\alpha=0.75$ and $\delta=0.65$; and $q=0.5$, $\alpha=0.9$ and $\delta=0.85$ to

demonstrate the cases when $\delta \leq \delta^*$ and $\delta > \delta^*$, respectively.

{Insert Fig. 6 here}

{Insert Fig. 7 here}

As shown in Figs. 6 and 7, the profit difference is concave in λ , and achieves the maximum value at $\bar{\lambda}_1=0.030$ ($\bar{\lambda}_2=0.047$) when $\delta=0.65$ ($\delta=0.8$). Thus the status preference help reduce the loss of the incumbent's profit in both cases ($\delta \leq \delta^*$ and $\delta > \delta^*$), except when λ is extremely small (i.e., $\lambda < \bar{\lambda}_1=0.030$ or $\lambda < \bar{\lambda}_2=0.047$).

6. Conclusion

6.1 Managerial Implications

Conspicuous consumption of status products offers status value to consumers, and is increasingly popular in the market. The great revenue generated by such consumption provides incentives for firms to imitate status products and enter the market. In this study, we examine the competition between incumbents and copycats in a market with consumers who exhibit both strategic purchasing behavior and conspicuous consumption behavior. **Main findings and managerial insights are highlighted below.**

First, we show that the incumbent is better off adopting a threshold pricing strategy. Specifically, when strategic consumers' patience is higher than a particular threshold, it is beneficial for the incumbent to increase its selling prices in both periods and allow the strategic consumers to delay their purchases to period 2. Notably, the threshold decreases with consumers' sensitivity to social status when the copycat enters. **This result indicates that firms should accurately clarify their market orientation, and make**

a choice between the selling price and the market demand. This result also explains why some high-end brands adopt limited sales when launching new products.

Second, strategic consumer behavior has a double-edged effect on the copycat when strategic consumers' patience is lower than a particular threshold. Particularly, the copycat's profit increases with strategic consumers' patience; however, when strategic consumers are more patient, the negative effects of status preference on the copycat's profit are more pronounced. This finding indicates that copycats should be cautious of entering a market where the incumbent has a lot of fanatical fans who are eager to buy the brand product as soon as it is released. *Further*, when the copycat's product quality is higher than a particular threshold, it will reduce both the incumbent's and the copycat's profits, and thus cause a "lose-lose" situation.

Finally, compared with the monopoly market, the copycat's entry may reduce the incumbent's profit, whereas the increase of consumers' status preference can help soften the competition and reduce the incumbent's loss of profit. This finding indicates that incumbents need to build their brand identity and enhance consumer recognition to counteract the negative effects of copycat entry.

6.2 Robustness and Future Research

In the previous sections, we assume that consumers who do not buy the incumbent's product (i.e. who buy the copycat's product or do not buy either product) share the same status utility which is related to the average wealth of such consumers. In this subsection, we further extend the base model to examine the scenario when the

status utility of purchasing the copycat's product is different from that of making no purchases. Through analysis, we find that the structures of consumer choices are robust, except that the threshold v_2 is increased and v_{c2} is decreased. As a result, the copycat's selling price and demand are increased, which is reasonable. However, the incumbent's demand and profit may decrease due to the more intensive competition. The details are provided in the Appendix.

This paper identifies some key findings that shed light on incumbents' pricing strategy, and two important decisions of copycats, namely, whether or not to enter the market and its pricing strategy, under the context of conspicuous consumption. This can further enrich the study of conspicuous consumption. Our work could be extended to consider further issues such as endogenous product quality, upgrades to the incumbent's product between periods and consumer loyalty.

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