Competitive Strategies for Brick-and-Mortar Stores to Counter "Showrooming"

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Customers often evaluate products at brick-and-mortar stores to identify their "best fit" product but buy it for a lower price at a competing online retailer. This free-riding behavior by customers is referred to as "showrooming" and we show that this is detrimental to the profits of the brick-and-mortar stores. We first analyze price matching as a short-term strategy to counter showrooming. Since customers purchase from the store at lower than store posted price when they ask for price-matching, one would expect the price matching strategy to be less effective as the fraction of customers who seek the matching increases. However, our results show that with an increase in the fraction of customers who seek price matching, the stores profits initially decrease and then increase. While price-matching could be used even when customers do not exhibit showrooming behavior, we find that it is more effective when customers do showrooming. We then study exclusivity of product assortments as a long-term strategy to counter showrooming. This strategy can be implemented in two different ways. One, by arranging for exclusivity of known brands (e.g. Macy's has such an arrangement with Tommy Hilfiger), or, two, through creation of store brands at the brick-and-mortar store (T.J.Maxx uses a large number of store brands). Our analysis suggests that implementing exclusivity through store brands is better than exclusivity through known brands when the product category has few digital attributes. However, when customers do not showroom, the known brand strategy dominates the store brand strategy.

Key words: online retailing, showrooming, retail competition, pricing, game theory, competitive strategy.

1. Introduction

Competition between retailers operating across channels is becoming more intense with the evolution of multi-channel retailing. In particular, research has shown that brick-and-mortar (BM, henceforth) stores and online retailers compete fiercely for mainstream products (Brynjolfsson et al. 2009). This competition exists even though the purchase experience for customers differs across the two types of retailers because product information availability is not symmetric. A significant body of literature has studied the design and implications of information revealing mechanisms such as product reviews for the online retailer (Fan et al. 2005, Dellarocas and Wood 2008, Kuruzovich et al. 2008, Kwark et al.

2014). Despite the availability of these mechanisms, many customers use a BM store to evaluate products when product attributes are non-digital in nature and are difficult to assess online (Lal and Sarvary 1999). After evaluating options at a BM store, customers may purchase the selected product from a competing online retailer if it is available at a lower price. This phenomenon results in the BM store losing potential customers. Some of the recent media articles (e.g., Bosman 2011) document that this trend, referred to as "showrooming," is on the rise. Zimmerman (2012) discusses how Target, a retailer of clothes, toys and many other products, was adversely impacted by showrooming.

1.1. Strategy Framework and Research Questions

Existing literature has not studied the nature of competition between BM stores and online retailers in the context of showrooming behavior by customers. Our first research goal is to address this gap in literature. We find that customer showrooming is indeed detrimental to the BM store's profit. This result sets our primary focus on exploring potential strategies that can be employed by a BM store to protect its profits.

A BM retailer can combat showrooming by employing either a short, or a long-term approach. If it chooses to employ a short-term approach, then it will adopt strategies that will involve minimal changes in its business processes, and can therefore be implemented quickly. On the other hand, if it chooses to employ a long-term approach, it may need to make substantial changes in its business processes, and hence implementation may require a longer time horizon. Hence, we propose price-matching as a short-term strategy, and having an exclusive product assortment as a long-term strategy. These examples are proposed based on the current trade literature wherein different strategies to combat showrooming are currently being discussed extensively, and we chose to analyze these specific strategies in the interest of relevance of our work. In situations where the BM retailer wants to

react quickly to showrooming behavior of customers, it may adopt short-term strategies. However, if it has more time to plan out its response, it may consider use of long-term strategies.

Pricing in online retailing has been studied extensively. Brynjolfsson and Smith (2000) show that prices at online retailers are significantly lower than at BM stores. Further, there is substantial price dispersion in the prices posted by the online retailers. Ghose and Yang (2010) show that the online price dispersion is lesser if one considers transaction prices rather than posted prices. Comparison of pricing models in the context of products (e.g., Abhishek et al. 2013, Hao and Fan 2014) and services (e.g., Lahiri et al. 2013) has also been studied. Further, some studies have looked at price discrimination mechanisms that become possible in the online context research (e.g., Cheng and Dogan 2008, Hinz et al. 2011). However, none of this research has considered pricing as a competitive strategy in the context of multi-channel competition when customers free-ride.

We consider a pricing strategy where the BM store commits to match the prices set by the online retailer. As a result, this strategy eliminates the price advantage to customers from practicing showrooming. Retailers like Target and Best Buy are using this strategy to compete with Amazon (Datko 2012, Zimmerman 2013). While there are signs that this strategy may have helped these retailers regain some lost ground, its benefit is not yet conclusive. Our second research goal is to study whether price matching can improve the BM store's profits, and if so, when? A related question is whether price matching can be adopted by the BM retailer even when consumers do not engage in showrooming. Further, we wish to analyze whether price-matching is a more/less apt strategy when consumers display showrooming behavior.

Now, we turn to the strategy of maintaining product exclusivity. Due to this strategy, a product selected by a consumer at the BM store may not be available at the online

retailer, reducing the benefit from showrooming. Product exclusivity can be implemented in two different ways. First, the BM store may set up an exclusivity arrangement with a known brand. For example, Macy's is an exponent of this approach (Keenan 2012, Talley 2012) and has exclusive tie-ups with well-known brands like Tommy Hilfiger and Martha Stewart. The second approach is exemplified by T.J.Maxx that carries hundreds of exclusive store brands (Kowitt 2014), which may not be so well known. Both of these approaches require extensive changes in the BM retailer's business model since it has to either manage contractual arrangements for exclusivity with manufacturers, or gear up its own product development in order to provide exclusive store brands. Our third research goal is to examine whether one kind of exclusivity arrangement is better than the other. Further, just as in the case of price matching, product exclusivity may be implemented by the BM retailer even when consumers do not engage in showrooming. Therefore, we want to analyze whether the relative benefit of the two exclusivity arrangements differs when consumers display showrooming behavior, compared to when they do not do so.

1.2. Contributions

Our study contributes to existing literature on customer free-riding. On the one hand, it is well known that customer free-riding has a detrimental effect on the profits of manufacturers who supply the retailers. Consequently, several studies (e.g., Telser 1960, Mathewson and Winter 1984, Carlton and Chevalier 2001) examine strategies adopted by the manufacturers, such as price floors and limiting product distribution to specific retailers. On the other hand, several papers show that the profits of the retailers increase due to customer free-riding. For example, Shin (2007) shows that free-riding may improve profit for the retailer who provides informational services because of reduced price competition. Wu et al. (2004) and Kuksov and Lin (2009) suggest that informational services may create differentiation between competing retailers resulting in improved profits. Given that existing

research (in the context of retail competition on the same channel) finds customer free-riding to be beneficial for the retailers, strategies to counter the impact of customer free riding were not studied. However, we show that customer free riding may be detrimental to profits of retailers in the context of multi-channel competition, and hence there is a need to study strategies that can be adopted by retailers to protect their profits. Further, we propose and study three specific short and long-term strategies that could be potentially useful to the BM stores.

Extant literature on price matching has underscored its collusive effect (Hay 1982). Price matching entails a credible commitment to match any competitor's prices. Therefore, competitors can raise prices without fear of losing market share. Yet, as demonstrated by Chen et al. (2001) and Corts (1996), price matching may also increase competition. Both these effects are pertinent to our model as well. Our analysis reveals that price matching commitment improves the BM store's profits only when the fraction of customers who take advantage of price matching is large enough. Further, we also show that price matching increases the BM retailer's profits when consumers do not engage in showrooming. However, the efficacy of the price matching strategy is greater when consumers do engage in showrooming.

On investigating the impact of product exclusivity, we find that both approaches to product exclusivity are beneficial for the BM store, but exclusivity arrangement with a known brand is better in product categories with less non-digital attributes, or when online product evaluation technology is better. We also show that both product exclusivity strategies can be adopted when consumer do not exhibit showrooming behavior, but, in this case, exclusivity with known brand appears to dominate exclusivity with store brand. Hence, as showrooming behavior becomes more common, one may expect BM retailers to increasingly favor exclusivity through store brands.

The rest of the paper is organized as follows. In Section 2, we present our formal model. This is followed by Section 3 where we compare BM store's profit under showrooming with that of the benchmark case when customers do not engage in showrooming. In Section 4, we study the price matching strategy, and in Section 5, we study the two product exclusivity strategies. Finally, in Section 6, we present some extensions and provide concluding remarks. All proofs and a summary of the notations used are in the Appendix.

2. Model

2.1. Retailers

We consider two retailers: the BM store and the online retailer. They are represented by the subscripts s(store) and o(online), respectively. To begin with, we assume that both retailers carry the same assortment of products. We relax this assumption in Section 4 where we consider assortment differentiation as a strategy to mitigate the reduction in profits due to showrooming. The price of each product in the assortment is set at p_s and p_o by the respective retailers. This setup captures a common situation in which all products in a particular category are by and large priced the same (e.g. shirts similar in type, style and quality are priced similarly even though they differ in sizes and designs). Customers may prefer different shirts based on their size and tastes. We assume that prices are common knowledge among firms and customers. We normalize the marginal cost of products for both retailers to be zero.

2.2. Customers

We assume that each customer buys one unit of the product that has both digital and non-digital attributes (Lal and Sarvary 1999). A visit to the BM store allows a customer to evaluate both digital and non-digital attributes of each product in the assortment in order to select the one product that best fits her unique needs. All customers receive utility v from their best-fit product. Customers who evaluate the product assortment only

at the online retailer are unable to accurately assess the non-digital product attributes, and so the product they select may not be their best-fit. Suppose that the probability of selecting a customer's best-fit product correctly by evaluating only at the online retailer is $(0 < p < 1)$, and the utility from any product that is not the customer's best fit is $(v - \Delta)$, where $(0 < \Delta < v)$. Therefore, a customer's expected utility from a product selected online is $(pv + (1-p)(v-\Delta))$, or, $(v - (1-p)\Delta)$. Writing $((1-p)\Delta)$ as δ, the ex-ante expected utility of a customer from purchasing after evaluating online is $(v - \delta)$, where the values of δ and v are known to both customers and retailers.

Customers incur different costs depending on the channel they use. Further, these costs are different across customers. Following Coughlan and Soberman (2005), we assume that there are two types of customers in the market who differ in their cost of visiting the BM store. One type, the "Lows," has a low cost of visiting the BM store, while the other type, the "Highs," has a high cost of visiting the BM store. The fraction of Lows is λ and that of Highs is $(1-\lambda)$. The cost of visiting the BM store for Lows is normalized to 0; the cost of visiting the BM store for Highs is denoted by t; and t is assumed to be greater than Δ. The lower bound on t ensures that some customers prefer evaluating and purchasing online compared to doing showrooming. We explain this point further in Appendix A. Foreman et al. (2009) empirically establish the existence of these costs. Such costs have also been discussed and analyzed in past studies (e.g., Balasubramanian 1998, Coughlan and Soberman 2005, and Desai et al. 2010). Once at the BM store, purchasing the product takes little additional effort. Therefore, we assume that this is costless for the customers.

We also assume that visiting the website of the online retailer is costless for all customers since this requires little effort or time commitment. However, if a customer purchases at the website, she must wait for delivery and may incur a cost depending on her level of trust in

online transactions (Bart et al. 2005). We allow these costs to be different across customers and assume it to be uniformly distributed on the standard Hotelling line between 0 and 1, where a customer's index $x \in [0,1]$ is proportional to her cost of purchasing from the online retailer. We use c as the proportionality constant to scale the costs. Each customer's costs are private information to that customer.

2.3. Retailer and Customer Decisions

The game proceeds in three steps. Figure 1 illustrates the stages of a customer's decision process.

1. At Stage 0, each retailer announces its price, which is observed by its competitor and by all customers.

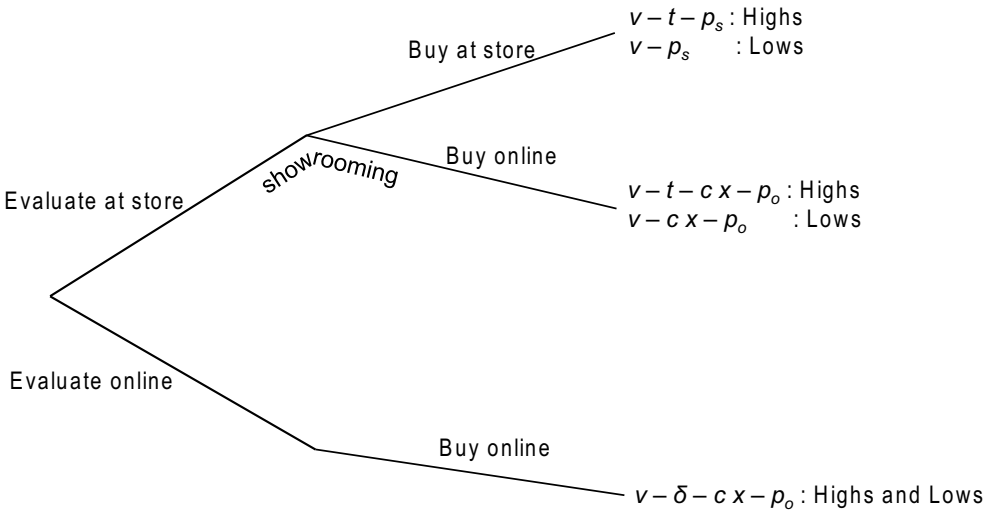

Figure 1 Decision Tree for Customers

2. At Stage 1, customers collect information about product attributes. Since it is costless for them to visit the online retailer's website, they may decide to do so to get some idea about their options. They may then decide to also *visit* the BM store to further evaluate the product assortment and identify the product they want to buy. The Highs incur a cost of t if they visit the BM store, whereas the Lows incur zero cost for visiting the BM

store. This visit allows them to identify their best-fit product which yields a gross expected utility v. Visiting only the online retailer's website to evaluate the product assortment is costless but yields a reduced gross expected utility of $(v-\delta)$ since the customer may not be able to identify her best-fit product.

3. At Stage 2, customers decide the channel to *complete* the purchase. Customers who visit the BM store to evaluate products can complete their purchase at the store. In this case, the net expected utilities for Highs and Lows are $(v-t-p_s)$ and $(v-p_s)$, respectively. Alternatively, a customer can purchase at the online retailer after first identifying her best-fit product at the BM store. This approach entails an additional cost of cx to purchase at the online retailer. Hence, the net expected utility in this case for Highs is $(v-t-cx-p_o)$ and for Lows is $(v-cx-p_o)$. Customers who choose this option are the ones who engage in showrooming. Finally, a customer may not visit the BM store at all and use the online retailer for both product evaluation and purchase. Her net expected utility under this scenario is $(v-\delta-cx-p_o)$. Note that the ex-ante choices of customers (before visiting the store) do not change ex-post (after visiting the store).

3. Analysis

When customers do showrooming, they may exercise one of the following three options: (a) evaluate and buy at the BM store, (b) evaluate at the BM store but purchase online (showrooming), and (c) evaluate and buy at the online retailer. All customers that exercise the same option constitute a market segment. We find the sizes of all the market segments given the prices set by the BM store and the online retailer. This allows us to get the profit functions of the two retailers, which we analyze to get the equilibrium profits. Since some customers exhibit showrooming behavior in this equilibrium, we refer to it as the *competitive showrooming equilibrium*.

In the benchmark situation, customers do not engage in showrooming, i.e., they do not separate their evaluation and purchase decisions across the physical and the online channels and can exercise only options (a), or (c). As before, we obtain the expressions for the market segments and thence the profit functions of the two retailers. Analyzing these profits we obtain the equilibrium profits, which we refer to as the *competitive benchmark equilibrium* profits.

More detail about this analysis is included in Appendix A. Comparing the profits of the BM store in the two equilibria discussed before, we get Proposition 1.

PROPOSITION 1. *The profit of the BM store in the competitive showrooming equilibrium is lower than that in the competitive benchmark equilibrium.*

An immediate implication of this proposition is that it shows that the BM store has an incentive to adopt strategies to try to combat the profit reducing impact of the showrooming behavior of customers. Accordingly, in the following sections of the paper, we study the efficacy of price-matching and product exclusivity strategies for the BM retailer to improve its profits. Further, these strategies can be adopted by the BM retailer to increase its profits even when customers do not exhibit showrooming behavior. Therefore, we also study whether the impact of these strategies changes when customers exhibit showrooming behavior vis-a-vis when they do not exhibit such behavior.

Showrooming behavior of customers has a direct and an indirect effect on the profits of the BM store. The direct effect is that it harder for the BM store to get customers to purchase, and so has an incentive to reduce its price, thus reducing its profits. The indirect effect is that it is easier for the online retailer to get customers to purchase, and so it has an incentive to raise its price, resulting in softening of price competition and inducing the BM store to increase its price resulting in higher profits. Proposition 1 shows that in our

setting the direct effect dominates the indirect effect, causing an overall reduction in the profits of the BM store.

Earlier work by Shin (2007) shows that sometimes the indirect effect can dominate the direct effect, resulting in improvement in profits of the store on whom customers free-ride to get information. The difference in their result can be traced to the difference in settings in the two papers. In Shin's setting, both the retailers are BM stores and the differentiation between the two stems from the fact that only one of the stores (the full-service retailer) can provide information to the customers about which product is a best-fit to their needs. In our setting, however, their is yet another way in which the two retailers are differentiated. This difference is because only one of the retailers is a BM store while the other is an online retailer. Since customers differ in their intrinsic preference for the physical and online channels, our setting assumes an overall higher differentiation between the two retailers. The implication is that the equilibrium prices are higher in the benchmark, and consequently, the direct incentive for the BM store to reduce its price is also higher. This results in the direct incentive to dominate the indirect incentive and reduce the profits of the BM store in our setting.

The finding that profits of the BM stores reduce due to showrooming is in line with current discussions in the trade press (Datko 2012) and in academic literature (Balakrishnan et al. 2014) and lends validity to our model. Further, this finding illustrates the importance of carefully modeling the nuances of multi-channel retailing to analyze competition. Since our result is different from Shin's, there is a need to study potential strategies to improve the BM store's profits. If the result were the same as his result, the implication would be that showrooming behavior of customers is not detrimental to the BM store's profits and hence there is no need to combat customer's showrooming behavior.

In subsequent sections, we now turn to the analysis of potential strategies to combat showrooming behavior of customers and improve profits of the BM store.

4. Price Matching Strategy

Here we study the impact of a credible commitment by the BM store to match the prices set by the online retailer. The commitment to match price can be made credible in many ways, including putting up prominent display signs in the store that proclaim this policy as well as a public announcement of the price matching policy in press releases or on the store's own website. Price matching eliminates the reason for showrooming as customers cannot get a lower price by purchasing at the online retailer. However, introducing a price matching strategy may change the incentives of the online retailer, and therefore, affect prices. We want to examine whether price matching can improve profits of the BM store in a competitive equilibrium.

Even when customers do not engage in showrooming, price matching by the BM store may make it a more attractive channel for the customers, increasing the BM store's profits. In the following two subsections, we focus on situations when customers engage in showrooming, and when they do not engage in showrooming.

4.1. Customers do Showrooming

Let p_m denote the common price (i.e., the price set by the online retailer and matched by its BM store competitor). The posted price of the BM store is p_s, where $p_s \geq p_m$. A fraction M of customers seek the benefit of price matching at the BM store while the remaining fraction, $(1 - M)$, do not. This behavior could be because of lack of awareness, or hassle costs for invoking price matching (e.g., Corts 1996, Hviid and Shaffer 1999). An industry expert remarked that less than 5% of people take advantage of price matching when it is offered (Ewoldt 2012). However, it can also happen that the BM store sets its price equal

to that of the online retailer resulting in all its customers getting a matched price even if they do not explicitly seek it. We want to explore such situations as well.

For λM customers, the net utility from evaluating and purchasing at the BM store is $(v - p_m)$, and from evaluating and purchasing online, it is $(v - \delta - cx - p_m)$. Clearly, the earlier option dominates for all customers implying that the indifferent customer, $x_{\lambda M} = 0$. For $(1-\lambda)M$ customers, the net utility from evaluating and purchasing at the BM store is $(v - t - p_m)$, and from evaluating and purchasing online, it is $(v - \delta - cx - p_m)$. Since, $t > \delta$, customers with $x < \frac{t-\delta}{c}$ prefer the latter option, and the rest prefer the earlier option. We represent the indifferent customer as $x_{(1-\lambda)M}$.

For $\lambda(1-M)$ customers, the net utility from evaluating and purchasing online is $(v - \delta - cx - p_m)$, while from showrooming, it is $(v - cx - p_m)$. Thus, showrooming always dominates the earlier option. The utility for these customers from evaluating and purchasing at the BM store is $(v - p_s)$. Hence, the customers with $x < \frac{p_s - p_m}{c}$ prefer to showroom, whereas the others prefer to purchase at the BM store. We represent the indifferent customer as $x_{\lambda(1-M)}$. Finally, for $(1-\lambda)(1-M)$ customers, the net utility from evaluating and purchasing online is $(v - \delta - cx - p_m)$, whereas from showrooming, it is $(v - t - cx - p_m)$. Since $t > \delta$, showrooming is always dominated by the earlier option. The utility for these customers from evaluating and purchasing at the BM store is $(v - t - p_s)$. Hence, the customers with $x < \frac{p_s - p_m + t - \delta}{c}$ prefer to purchase online, whereas the remaining purchase at the BM store. We represent the indifferent customer as $x_{(1-\lambda)(1-M)}$.

The profit of the online retailer can be expressed as $\pi_o^m = ((1-\lambda)M x_{(1-\lambda)M} + \lambda(1-M)x_{\lambda(1-M)} + (1-\lambda)(1-M)x_{(1-\lambda)(1-M)})p_m$ and that of the BM store is $\pi_s^m = (\lambda M + (1-\lambda)M(1-x_{(1-\lambda)M}))p_m + (\lambda(1-M)(1-x_{\lambda(1-M)}) + (1-\lambda)(1-M)(1-x_{(1-\lambda)(1-M)}))p_s$. Solving the first order conditions of the profits π_o^m and π_s^m with respect to p_m and p_s,

respectively, we get the equilibrium values of prices $p_m^* = \frac{c(1-M)+(1-\lambda)(1+M)(t-\delta)}{3(1-M)}$ and $p_s^* = \frac{2c(1-M)-(1-\lambda)(1-2M)(t-\delta)}{3(1-M)}$. Substituting these prices in the profit functions, we get the equilibrium values of the profits. From consistency requirements of the equilibrium, we know that a binding condition is $p_s^* > p_m^*$. This condition translates into an upper bound on M, which we represent by $\bar{M}$. When $M \geq \bar{M}$, the reaction function of the BM store price is $p_s = p_m$, instead of being determined from first order condition of the profit of the BM store. In this case, the equilibrium prices are $p_s^* = p_m^* = \frac{(1-\lambda)(t-\delta)}{1-M}$, and the corresponding equilibrium profits are obtained by substituting these prices in the retailers' profit functions. Comparing the BM store's profits under price matching with its profits in the showrooming case, we get (see Appendix B):

PROPOSITION 2. *The profits and price set by the BM store under price matching can be characterized as follows:*

1. The profits of the BM store improve with price matching only when $M > \hat{M}$, where $\hat{M} = 6 - \frac{c(5c-4(1-\lambda)(t-\delta))}{(c-(1-\lambda)(t-\delta))^2}$.

2. The BM store's posted price is set equal to the online retailer's price for $M > \bar{M}$, where $\bar{M} = \left(2 - \frac{c}{c-(1-\lambda)(t-\delta)}\right) > \hat{M}$.

The first part of the above proposition states that price matching commitment improves the BM store's profits only when the fraction of customers who take advantage of price matching is large enough. The intuition for this result is that for higher values of M, the online retailer increases its price, and the BM store matches this price due to its price matching commitment. Customers who seek price matching at the BM store buy at this price. As M increases, the online retailer can raise its price further as the segment that does not seek price matching becomes less important, and so the retailer does not compete as fiercely for these customers. Therefore, there is a price coordination effect that improves

the profits of the BM store. However, the downside is that more customers buy from the BM store at the lower price set by the online retailer (p_m^*) due to price matching rather than at the BM store's higher posted price (p_s^*). Therefore, there is a revenue loss due to this market shift, i.e., more customers buy at the lower price. This market effect dominates the price coordination effect at low values of M, and so, the profits of the BM store decrease. However, at higher values of M, the price coordination effect becomes dominant, leading to an increase in the BM stores profits.

The second part of Proposition 2 implies that the posted price of both the retailers is the same when the fraction of customers who seek price matching is large enough. The intuition for this is as M increases, the collusive effect strengthens, allowing the online store to raise its price so high that it becomes equal to the BM store's posted price. The thresholds on M indicate that under the parameter conditions when prices are equal, the profits of the BM store are higher than its profits under showrooming. It is worthwhile to note that in this case, customers get the price charged by the online store even if they do not seek price matching.

4.2. Customers do not Engage in Showrooming

When customers do not engage in showrooming, they have only two options: either they can visit the BM store and purchase from there, or they can purchase from the online retailer. As in the earlier section, a fraction M of the customers seek the matched price if they purchase from the store, while the others purchase at the BM store's posted price. We find the index of the indifferent customers to find the market shares of each retailer. Then we write their profit functions and find the equilibrium prices and profits. Comparing these profits to the equilibrium profits in the benchmark case (when customers do not engage in showrooming and price matching is not offered), we find that similar to the analysis

earlier, there is a threshold value of the fraction M (call $\tilde{M}$) beyond which the profit of the BM retailer is higher with price matching. This brings up the question that how the two thresholds on M compare in the case when customers engage in showrooming and when they do not. This result is reported in the following proposition (see Appendix B for more details).

PROPOSITION 3. *The threshold fraction of customers at which price matching improves the BM retailer's profit is higher when customers do not engage is showrooming, i.e.,* $\tilde{M} > \hat{M}$*. Hence, price matching may be an effective strategy to improve the profits of the BM retailer when customers showroom, even in situations where it is not an effective strategy when customers do not showroom (for* $\hat{M} < M < \tilde{M}$*).*

This proposition implies that it is possible for the BM retailer to adopt price matching when customers showroom, even when it chose not to adopt price matching when customers did not showroom. The reason for this result is that when customers do not engage in showrooming, the prices at the retailers are relatively higher due to lower competition to acquire customers. Therefore, the rate at which price p_m increases with M when customers do not engage in showrooming is lower compared to when customers engage in showrooming. Clearly, the price coordination effect is lower leading to this result.

5. Product Exclusivity Strategy

One way to reduce the benefit of showrooming is by maintaining an exclusive product assortment that is not available online. This kind of intervention creates a possibility that the best-fit product identified by a customer after evaluating at the BM store is not available at a competing online retailer. As discussed in the Introduction, product exclusivity can be implemented either by setting up arrangements with well-known brands, or by creating exclusive store brands. The difference between these two types of exclusivity

is that some customers have a strong preference for well known and famous brands, while this is not so for store brands. Therefore, in the case of exclusive arrangements with strong brands, customers who prefer the brand know ex-ante that their best-fit product will be available at the BM store and will not be available at the online retailer. On the other hand, in the case of exclusivity using store brands, ex-ante customers only know that with some probability their best-fit product may turn out to be the store brand. If that happens, their best-fit product will not be available at the online retailer.

Even when customers do not engage in showrooming, presence of a an exclusive assortment at the BM store may make it a more attractive channel for the customers, increasing the BM store's profits. In the following two subsections, we focus on situations when customers engage in showrooming, and when they do not engage in showrooming. In each of these two situations, we study exclusivity through known brand and store brand and compare their relative effectiveness for the BM store.

5.1. Customers do Showrooming

Product Exclusivity through Store Brands

We consider a situation where the BM store carries exclusive store brand products, and that this information is known to customers. Therefore, ex-ante customers only know with probability a that their best fit product will be from the exclusive store brand. Let the prices at the BM store for the exclusive products be p_a and of non-exclusive products be p_s. The price of the products at the online retailer are p_o. Thus, of the customers who showroom by going to the BM store and then looking for a matching product online, fraction a get the utility $(v - \Delta - cx - p_o)$ from buying online since their best-fit product is not available online for sure. However, fraction $(1 - a)$ get a utility $(v - cx - p_o)$, as their best-fit product is available at the online retailer.

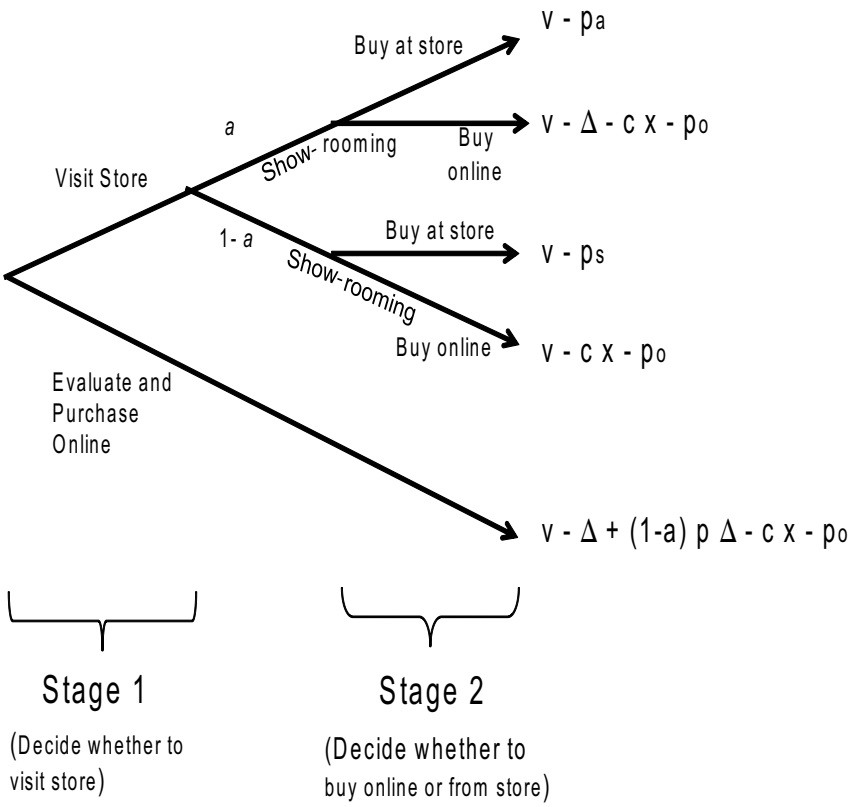

Figure 2 Lows Customers' Decision tree with Product Exclusivity through Store Brand

We now explain the decisions for Lows customers using Figure 2. When such a customer visits the store, with probability a, her best-fit product is the store brand. If such a customer purchases this product, she gets a utility of $(v - p_a)$. If, on the other hand, she purchases the non-exclusive product at the store, her utility is $(v - \Delta - p_s)$. For now, we assume that in equilibrium $(p_s - \Delta < p_a < p_s + \Delta)$.[1] In this situation, all such customers prefer to buy their best-fit product. After working out the equilibrium prices, we will verify that this assumption is indeed correct. The alternative for this customer is to purchase the non-exclusive product at the online retailer. Since this product is not her best-fit product for sure, she gets a utility $(v - \Delta - cx - p_o)$. Setting $(v - \Delta - cx - p_o = v - p_a)$, and solving for x, we get the location of the indifferent customer as $(x_a = \frac{p_a - p_o - \Delta}{c})$.

A Lows customer visiting the BM store finds that with probability $(1 - a)$, her best-fit

[1] In the proof of Proposition 4, we discuss that this condition must be satisfied to represent realistic scenarios.

product is not the store brand, but a non-exclusive product at the BM store. If such a customer purchases this product, she gets a utility of $(v - p_s)$, whereas, if she purchases the exclusive product, she gets a utility $(v - \Delta - p_a)$. Since, $(p_a > p_s)$, she will always prefer to purchase her best-fit product. The alternative for such a customer is to purchase the non-exclusive product at the online retailer. As this customer can find her best-fit product at the online retailer, she gets a utility $(v - cx - p_o)$ from exercising this option. Setting $(v - p_s = v - cx - p_o)$, and solving for x, we get the location of the indifferent customer as $(x_{(1-a)} = \frac{p_s - p_o}{c})$.

Instead of visiting the BM store, the Lows customer can evaluate the products and purchase at the online store. In this case, the customer does not discover whether the store brand was her best-fit product. Therefore, her ex-ante utility from exercising this option is $(a(v - \Delta - cx - p_o) + (1 - a)(v - \delta - cx - p_o))$. Simplifying this expression, we get $(v - (1 - (1 - a)p)\Delta - cx - p_o)$. In Appendix C, we show that all Lows customers prefer to visit the store rather than to evaluate and purchase online. Intuitively, the reason is that it is costless for Lows customers to visit the store to discover whether the store brand is their best-fit product, or not, and then make their choices based on this information, rather than making their choices without this information.

Based on this analysis, we conclude that $(\lambda a(1 - x_a))$ customers purchase the exclusive store brand at price p_a, $(\lambda(1 - a)(1 - x_{(1-a)})$ customers purchase the non-exclusive product at the store at price p_s, and $(\lambda(ax_a + (1 - a)x_{(1-a)}))$ customers purchase the non-exclusive product from the online retailer at price p_o.

Now, we analyze the decisions of the Highs customers. To do this, we first note that $(x_a < x_{(1-a)})$. Now, we consider the decisions of customers based on their index, x. First, consider the customer segment with $(x > x_{(1-a)})$. The expected utility that such customers

get by visiting the BM store is $(a(v-p_a)+(1-a)(v-p_s)-t)$, and by evaluating and purchasing online their expected utility is $(v-(1-(1-a)p)\Delta-cx-p_o)$. The customer indifferent between these two options is denoted by x_{H1}. Comparing x_{H1} with $x_{(1-a)}$, we find that $(x_{H1} > x_{(1-a)})$. Therefore, customers in this segment purchase at the BM store if their index $(x > x_{H1})$, and they evaluate and purchase online if $(x_{(1-a)} < x \leq x_{H1})$.

Next, we consider the Highs customer segment with $(x < x_a)$. The expected utility such customers get by visiting the BM store is $(a(v-\Delta-cx-p_o)+(1-a)(v-cx-p_o)-t)$, and by evaluating and purchasing online, they get $(v-(1-(1-a)p)\Delta-cx-p_o)$, as before. Comparing these two expressions for the utilities, we find that the one associated with evaluating and purchasing online is higher since $(t > \Delta)$. Therefore, all customers in this segment will evaluate and purchase online.

Finally, we consider the Highs customer segment with $(x_a \leq x \leq x_{(1-a)})$. The expected utility of such customers by visiting the BM store is $(a(v-p_a)+(1-a)(v-cx-p_o)-t)$, and is the same as indicated earlier for evaluating and purchasing online. The customer indifferent between these two options is denoted by x_{H2}. Comparing x_{H2} with $x_{(1-a)}$, we find that $(x_{H2} > x_{(1-a)})$. Therefore, all customers in this segment will evaluate and purchase online.

Based on the above analysis, we conclude that $((1-\lambda)a(1-x_{H1}))$ customers purchase at the BM store at price p_a, while $((1-\lambda)(1-a)(1-x_{H1}))$ customers do so at the price p_s. Finally, $((1-\lambda)x_{H1})$ customers evaluate and purchase online at the price p_o.

We express the profit functions of the two retailers based on the market segmentation described above and find the equilibrium prices (more details in Appendix D). We also verify that the conditions assumed on the prices are always satisfied. Substituting these prices in the profit function of the BM retailer, we get its equilibrium profit.

Product Exclusivity through Known Brands

Here, we consider a situation where the BM store carries the products exclusively from a well-known brand. Further, this information is known to customers. In order to maintain parity with the situation when product exclusivity is implemented through store brands, we assume that fraction a of customers prefer the exclusive brand. Therefore, their best fit product belongs to the exclusive brand, whereas the best-fit product of the remaining $(1-a)$ fraction of customers comes from the non-exclusive products. The assumption implies that in both cases of exclusivity, fraction a of customers find their best-fit product in the exclusive brand. The difference is that in case of known brand, these customers know this even before they start their search, whereas in case of store brand, customers do not know this before they start their search. Let the prices at the BM store for the exclusive products be p_a and of non-exclusive products be p_s. The price of the products at the online retailer are p_o.

Consider the decisions of the Lows customers who prefer the exclusive brand (see Figure 3). If these customers visit the BM store and purchase their best-fit product, they get the utility $(v-p_a)$. Note that they prefer to purchase their best-fit product since we assume $(p_s < p_a < p_s + \Delta)$. After working out the equilibrium prices, we will ensure that this assumption on pricing holds. Purchasing at the online store provides them with utility $(v-\Delta-cx-p_o)$. The customer indifferent between these two options is denoted by $(x_{La} = \frac{p_a - p_o - \Delta}{c})$. The Lows customers who do not prefer the exclusive brand can purchase their best-fit product at the BM store and get a utility $(v-p_s)$. Here, again they prefer to purchase their best-fit product because of the assumption on the pricing structure. Showrooming provides these customers with a utility $(v-cx-p_o)$, which is always better than evaluating and purchasing online since the utility with that alternative is $(v-\delta-cx-p_o)$.

Comparing the two options of purchasing the best-fit product at the BM store and showrooming, we get the location of the indifferent customer at ($x_{L(1-a)} = \frac{p_s - p_o}{c}$).

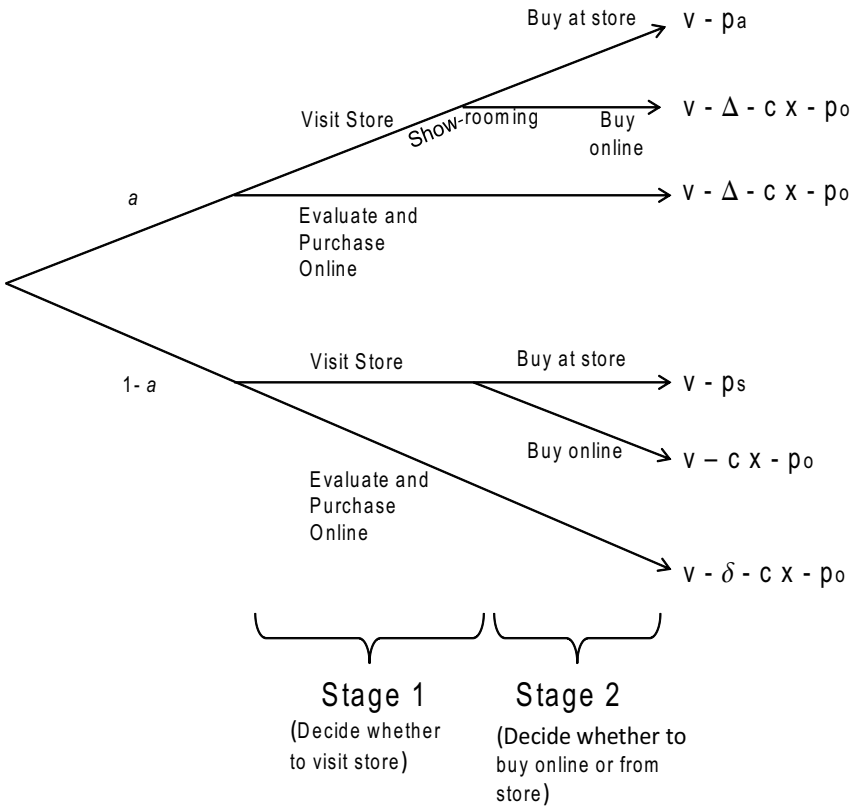

Figure 3 Lows Customers' Decision tree with Product Exclusivity through Known Brand

We now consider the decisions of the Highs customers who prefer the exclusive brand. The two options for these customers is either to purchase at the store which gives a utility ($v - p_a - t$), or evaluate and purchase online which provides utility ($v - \Delta - cx - p_o$). The customer indifferent between these two options is represented by ($x_{Ha} = \frac{p_a - p_o + t - \Delta}{c}$). Note that these customer do not showroom since that option provides a utility of ($v - \Delta - cx - p_o - t$), which is inferior to evaluating and purchasing online. The Highs customers who do not prefer the exclusive brand can purchase their best-fit product at the BM store and get a utility ($v - p_s - t$). If they evaluate and purchase online they get a utility ($v - \delta - cx - p_o$). Comparing these two options, we get the location of the indifferent customer at ($x_{H(1-a)} =$

$\frac{p_s-p_o+t-(1-p)\Delta}{c}$). Note that if such as customer exercises the showrooming option, she gets a utility $(v-cx-p_o-t)$, which is inferior to evaluating and purchasing online since $(t>\delta)$.

Given the market segmentation above, we write the profit functions of the BM store and the online retailer and find the equilibrium prices (more details in Appendix D). We verify that required conditions on prices are satisfied. Substituting these prices in the profit function of the BM retailer, we find its equilibrium profits. Compared to the competitive showrooming equilibrium, the profits of the BM store are higher when it employs product exclusivity through either a known brand, or a store brand.

Further, we compare the equilibrium profits of the BM retailer in the two product exclusivity scenarios with each other to report our next result.

PROPOSITION 4. *When customers engage in showrooming behavior, the BM store's profits using product exclusivity with the known brand are higher compared to its profits when using product exclusivity with store brand iff* $p > \frac{\sqrt{\lambda}}{1+\sqrt{\lambda}}$.

The intuition for this result is as follows. The downside of evaluating and purchasing at the online retailer reduces with increase in p because a customer has a higher chance of identifying her best-fit product without visiting the BM store. This strengthens the competitive position of the online retailer and manifests in increase in its price p_o in both situations of product exclusivity.

In the case of exclusivity through the store brand, Highs customers choose between visiting the BM store and evaluating and purchasing online. As the utility from the latter option increases with p, the BM store reacts by reducing its prices for both the exclusive and non-exclusive products. Despite this reduction in its prices, its market share reduces for both types of customers: whose best-fit product is the exclusive store brand, or the non-exclusive product. Overall, this results in a reduction in the profits of the BM store as p increases.

In the case of exclusivity through the known brand, the utilities for fraction a of customers from either visiting the BM store, or evaluating and purchasing online do not get affected with p (see Figure 3). The reason is such customers know for sure that their best-fit product is not available online, and so a change in p does not matter. However, as discussed earlier, p_o increases with p, which relaxes price competition and causes an increase in price of the exclusive known brand product. Further, the market share of this segment with the BM store also increases. This results in an increase in the profits of the BM store from this segment. For fraction $(1-a)$ of customers, however, increase in p matters and this results in reduction in price of the non-exclusive product at the store. The market share of this segment also reduces. Overall, the impact is that the profits of the BM store reduce with p. However, because of the positive impact on profits from fraction a of customers, the rate of reduction in profits is lower compared to the case when product exclusivity is implemented through store brand. Therefore, when p is large enough, the profits of the BM store from implementing exclusivity through known brand are higher compared to its profits when it implements exclusivity through store brand.

The main takeaway from Proposition 4 is that the specific approach to product exclusivity depends on the value of p. This parameter incorporates the combined influence of the product category and the technology implemented by the online retailer to help customers evaluate products at its website. A product category with relatively lower non-digital attributes, or sophisticated technology at the online retailer is likely to make exclusivity with known brands a better strategy compared to exclusivity with store brands. This result also shows that both the exclusivity strategy adopted by retailers like Macy's (exclusivity through known brand) and T.J.Maxx (exclusivity through store brand) help improve their profits in the face of showrooming. However, as online product evaluation technology evolves, the strategy adopted by Macy's seems to have better potential.

5.2. Customers do not Engage in Showrooming

When customers do not engage in showrooming, their decision trees are simplified as they either decide to purchase from the BM store, or directly from the online retailer (without first visiting the BM store).

In case of exclusivity through the store brand, if the Lows customer visits the BM store and identifies the exclusive product as her best fit (with probability a), then her utility from purchasing this product is $v - p_a$. Her alternative is to purchase a non-exclusive product giving her a utility of $v - \Delta - p_s$. If, the customer's best fit product is the non-exclusive one, then her utility from purchasing that product is $v - p_s$, and from purchasing an exclusive product, it is $v - \Delta - p_a$. Since all customers who visit the store purchase only from the store, in equilibrium, one can set $p_a = p_s + \Delta$. With this pricing, we can observe that all customers prefer to purchase her best fit product. Since a customer does not know before visiting the BM store whether her best fit product is the exclusive, or the non-exclusive one, her expected utility from visiting the store is $a(v - p_a) + (1 - a)(v - p_s)$.

If the Lows customer purchases online directly, then her expected utility is $a(v - \Delta - p_o - cx) + (1 - a)(v - \delta - p_o - cx)$. Comparing the expected utilities from visiting the BM store and purchasing online directly, we find the market segmentation for the Lows customers. In a similar way, we can find the market segmentation for the Highs customers and then write the appropriate profit functions for the two retailers. We solve for the respective first order conditions to obtain the equilibrium prices to be $p_s^* = \frac{1}{3}((1 - a)\Delta - 2a\Delta + 2c - (1 - \lambda)t)$ and $p_o^* = \frac{1}{3}(-a\Delta - (1 - a)\Delta(1 - p) + c + (1 - \lambda)t)$, and the corresponding profit of the BM store is $\frac{(-(1-a)\Delta p + 2c + \Delta - (1-\lambda)t)^2}{9c}$.

In the case of exclusivity through the known brand, customers know ex-ante whether their best fit product is available only at the BM store. Consider the Lows customers: for

fraction a of such customers, their best fit product is the exclusive product and assuming that $p_s < p_a < p_s + \Delta$, they choose between visiting the store to buy the store brand (provides them with utility of $v - p_a$) and to purchase directly from the online retailer (provides a utility of $v - \Delta - p_o - cx$). After working out the equilibrium prices, we will verify that the assumed conditions on pricing apply. For fraction $(1 - a)$ of the Lows customers, their best product is the non-exclusive product and they choose between purchasing at the BM store (provides utility $v - p_s$) and purchasing at the online retailer (provides utility $v - (1-p)\Delta - p_o - cx$. Equating the utilities from the different available options, we can find the location of the indifferent Lows customer. In a similar way, we can find the indifferent Highs customers. We now write the profit functions of the BM store and the online retailers and solve appropriate first order conditions to the get the equilibrium prices as $p_s^* = \frac{1}{6}(-a\Delta p + 4c + 2\Delta(1-p) - 2(1-\lambda)t)$, $p_a^* = \frac{1}{6}((3-a)\Delta - (1-a)\Delta p + 4c - 2(1-\lambda)t)$, and $p_o^* = \frac{1}{3}(-a\Delta - (1-a)\Delta(1-p) + c + (1-\lambda)t)$. The corresponding profits of the BM store are $\frac{16c(-(1-a)\Delta p + \Delta - (1-\lambda)t) + \Delta^2(4-(a-1)p(5ap+4p-8)) - 8\Delta(1-\lambda)t(1-(1-a)p) + 16c^2 + 4(1-\lambda)^2t^2}{36c}$.

Comparing the profits of the BM store in the two scenarios, we get our next result (see Appendix D):

Proposition 5. *When customers do not engage in showrooming behavior, the profits of the BM store with exclusivity through known brand is higher than its profits with exclusivity through store brand.*

The outcome of Proposition 5 is that the known brand strategy always dominates the store brand strategy when customers do not engage in showrooming. It is useful to understand why the known brand strategy becomes more useful than the store brand strategy in this case when customers do not engage in showrooming. This is because the price of the online retailer is set higher when customers engage in showrooming compared to when they

do not. The reason is that the online retailer can acquire customers relatively easily when they do showrooming and so needs to compete less vigorously on price. Further, as the parameter p increases, the utility from directly purchasing at the online retailer increases, allowing it to increase its price. However, its incentive to increase its price is higher when customers do not showroom because its price is set at a comparatively lower level in this case. Consequently, relaxation in price competition is more, leading to even higher prices for the exclusive product in the case of the known brand when customers do not engage in showrooming. This effect improves the profits from the known brand strategy compared to the store brand strategy, and we have the result laid out in the above proposition.

In order to put the results from the previous two propositions in perspective, we compare these results and report that:

Corollary 1. *Showrooming behavior of consumers results in the BM store preferring the store brand approach to exclusivity more than in the situation when customers do not engage in showrooming.*

The import of Corollary 1 is clear; as customers engage in showrooming, and BM retailers choose to adopt a product exclusivity strategy to combat its effect, they should analyze the product category as well as the product evaluation technologies provided by the online retailer. If the effectiveness of customer evaluation on the online channel is high enough, the BM retailers should adopt exclusivity through the known brand strategy. However, if the effectiveness of evaluation is not that high, they should adopt product exclusivity through the store brand strategy.

6. Conclusions

6.1. Extensions

Here we discuss three additional scenarios. First, we consider that the fraction of customers who seek benefit of price matching at the BM store depends on the difference between prices

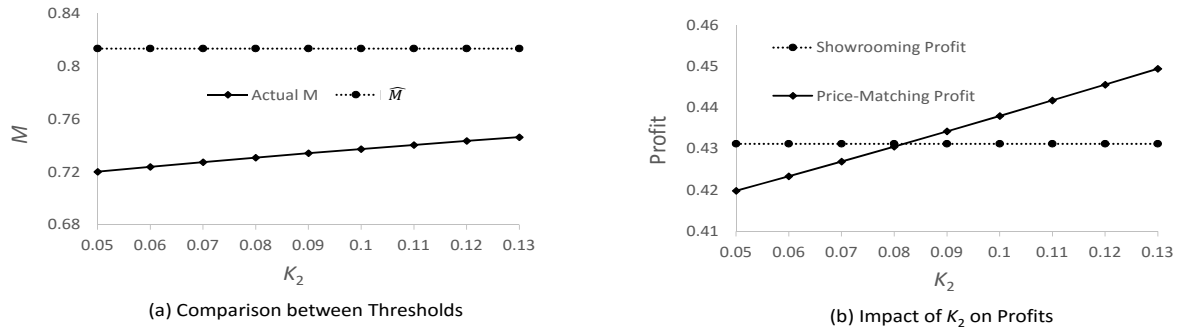

Figure 4 Impact of Price Matching Strategy

of the BM store and the online retailer. This allows for the situation that more customers may seek price matching when the benefit of price matching is higher. We model this scenario by representing M as follows: $M = K_1 + K_2\frac{p_s - p_m}{p_s}$, where K_1 and K_2 are positive constants. By solving this model numerically, we find that the results of Proposition 2 still hold qualitatively. However, our results show that the new threshold $\hat{M}'$ is less than the earlier threshold (i.e., $\hat{M}$). For example, as shown in Figure 4(a), M is always less than $\hat{M}$ for all the values of K_2 considered in the experiment. But, Figure 4(b) shows that the profits of the BM store still improve with price matching at higher values of K_2. This result implies that price matching strategy becomes even more effective when the fraction of customers who seek benefit of price matching at the BM store increases with the difference between prices of the BM store and the online retailer.

Second, customers visiting the BM store may also make impulse purchases. Hence, the BM store may benefit from the number of customers visiting the store and not only from the customers who purchase the intended product from the BM store. We model this scenario by adding a parameter, z, that captures the value of a customer visit to the BM store. Now, we obtain the equilibrium profits of the BM store under the competitive showrooming equilibrium. Due to the impulse purchase behavior of customers, the profit function of the

BM store is modified to $\lambda(1-x_1)p_s + (1-\lambda)(1-x_2)(p_s+z) + \lambda z$ (for expression of the profit functions of the two retailers without impulse purchase, please refer to Appendix A). Note that the term $(1-\lambda)(1-x_2)(p_s+z)$ shows that fraction $(1-x_2)$ of the high types customers purchase not only the product they were interested in evaluating, but other additional items that results in an additional benefit of z for the BM store. Further, the term λz shows that all the low type customers contribute an additional benefit of z to the BM store due to impulse purchases. The reason is that all of them visit the BM store, and a fraction $(1-x_1)$ purchase the intended item from the BM store and the remaining customers exhibit showrooming behavior and purchase the item from the online retailer. The profit function of the online retailer remains the same as when customers do not indulge in impulse purchases. Using these profit functions, we find the equilibrium prices of the BM store and the online retailer to be $\frac{2c-(t+2z-\delta)(1-\lambda)}{3}$ and $\frac{c+(1-\lambda)(t-z-\delta)}{3}$, respectively. Substituting these prices in the profit function of the BM store, we obtain the expression for its equilibrium profits to be $\frac{(2c-(1-\lambda)(t-\delta))^2+(c(4+5\lambda)-(1-\lambda)(2+7\lambda)(t-\delta))z+(1-\lambda)^2z^2}{9c}$. Next, we obtain the equilibrium profits of the BM store under the competitive benchmark equilibrium in this setting. The profit function of the BM store can be written as $\lambda(1-x_1)(p_s+z) + (1-\lambda)(1-x_2)(p_s+z)$, while that of the online retailer is the same as when customers do not do impulse purchases. Notice that the parameter z now captures the additional earnings from the customers who visit the BM store. Using the profit functions of the two retailers, we obtain the equilibrium profits of the BM store in the competitive benchmark equilibrium to be $\frac{(2c+\delta-(1-\lambda)t+z)^2}{9c}$. In Figure 5, we plot the difference between the profits of the BM store in the competitive showrooming equilibrium and the competitive benchmark equilibrium with respect to the parameter z. We observe that the difference between the profits is concave, and when c is large enough, we obtain an inverted-U shaped function,

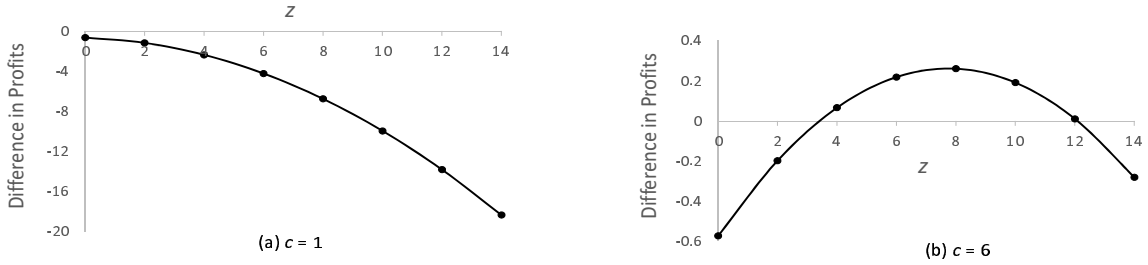

Figure 5 Impact of Impulse Purchases on Profits

while we get a monotonically decreasing function when c is small. We also observe that the value of the inverted-U shaped function is greater than 0 for some intermediate range of z. Therefore, we see that due to propensity of impulse purchase, sometimes the showrooming profits can be higher than the benchmark profits and the firm may have less need to combat showrooming. Looking at it in another way, to the extent that the BM store can encourage impulse purchase behavior, we have another potential strategy to combat showrooming by encouraging impulse purchases.

Third, we developed a model to analyze the impact of retailers replacing the barcodes put on the products by manufacturers with their own barcodes. The main change from the benchmark showrooming model was that customers who visited the BM store could make a choice of either incurring a cost to match their best-fit product at the online retailer (this cost is due to changing of barcodes which makes product matching harder, and customers have to incur some cost in doing the matching), or choosing to purchase their best-fit product at the BM store and avoid this new product matching cost. The consequence of such a product matching cost was that fewer customers were now interested in showrooming, which resulted in a reduction in the intensity of price competition and higher profits for the BM store.

6.2. Summary

Customers nowadays can evaluate products in BM stores and order online if the online price is lower. This practice of showrooming by customers threaten the bottom lines of those retailers whose business models are predominantly based on BM store outlets. In the context of multi-channel retail competition, we find that the price cutting incentive of the BM store to stem the leakage of customers to the online retailer due to showrooming is more significant than the incentive of the online retailer to increase its price due to acquisition of showrooming customers. Thus, showrooming enhances price competition leading to lower profits.

We consider both short-term as well as long-term strategies for improving the BM store's profits when customers engage in showrooming. We propose price matching as a short-term strategy since it can be implemented relatively quickly and does not require the BM retailer to make extensive changes in its business model. Further, we propose exclusivity of product assortment at the BM retailer as a long-term strategy. Here, we consider two nuances of managing exclusivity: (1) Through creation of store branded products, and (2) through tie ups with manufactures of established brands. We establish that price matching may not always be effective in improving profits of the BM store. However, it is a more effective strategy to improve its profits compared to the situation when customers do not showroom. With regards to product exclusivity, we find that creation of exclusivity through store brand is more effective when customers are less able to identify their best fit product solely by evaluating products on the online channel. Finally, we also find that the store brand strategy to create exclusivity is dominated by the known brand strategy when customers do not showroom. These theoretical results provide guidance to BM stores that seek to safeguard their profits in the face of increasing online competition due to showrooming behavior of customers.

We consider only three strategies for the BM stores to improve their profits. Future research may explore other strategies. Further, our analysis is based on the interaction between the BM stores and the online retailers. But, we do not study how manufacturers will respond to showrooming, and whether they will want to impose certain contractual conditions on the retailers to maximize their own profits under this situation. The analysis of manufacturers' incentives has potential for future research.

It is possible that the online retailer may implement a returns policy to partially offset the disadvantage due to lack of perfect evaluation of the product. Our conjecture is that allowing for returns results in the online retailer having to incur a cost of serving the consumers. This is in the nature of a marginal cost and hence will have an upward influence on the price set by this retailer. Hence, this would cause a relaxation in price competition, and lead to higher prices in the showrooming equilibrium. A full analysis of the returns policy when customers do showrooming therefore seems to be a good topic for future research.

Another interesting situation could be one where the BM store has an online channel of its own. Clearly, the online channel of the BM store and that of the pure-play retailer must be differentiated in some way to avoid Bertrand competition which will otherwise drive the prices down to zero. Presence of exclusive brands at the online channel of the BM store may make its online channel more preferred than that of the pure play online retailer and create the necessary differentiation to avoid the Bertrand outcome. Hence, one may expect the BM store to keep its online price higher than that of the prices at the pure-play store. Therefore, consumers who engage in showrooming behavior will purchase from the pure-play online store as they are in search of lowest prices. However, customers who purchase directly (without going to the BM store) will want to purchase from the

online channel of the BM store as that would ex-ante be more valuable to the consumers. Since the pure-play online retailer would now only get the consumers who showroom (and not those who purchase directly), it will have a higher incentive to set a lower price, and consequently price competition will exacerbate. The eventual outcome in terms of profits for the BM store then depends upon the tradeoff between the additional revenues from the customers who do direct online purchasing and the loss in revenue due to heightened price competition.

Finally, currently we consider a situation where all customers in the market are fully aware about both the retailers. When all potential customers are not aware about the retailers, it is useful to employ advertising. A significant body of literature has studied advertising using digital media (Tan and Mookerjee 2005, Ghose and Yang 2009, Animesh et al. 2011, Wattal et al. 2012). Another possibility for future research is to consider how advertising on digital media by the BM and online retailers will get affected due to showrooming behavior of customers.

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