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Research note

Does Travel Time to Stores Matter? The Role of Merchandise Availability

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Abstract

Retailers generally attract consumers to further locations by offering discounted merchandise. We suggest an alternative strategy is to increase the availability (or certainty) of finding the merchandise at their store (i.e., reduce stock-outs). We conduct three experiments to highlight that consumers view travel time more adversely when there is uncertainty about merchandise availability. We also demonstrate that the negative effects associated with uncertainty around merchandise availability and travel time can be mitigated through the use of in-stock guarantees.

Keywords: Merchandise guarantee; Stock-outs; Pricing; Travel time

Retail location is commonly viewed as the most important driver of retail success, as is evident from the common retail mantra – location, location, and location. However, finding an appropriate location near the target market is not always easy due to space and financial constraints. For example, a typical Wal-Mart store is over 100,000 ft^2 and this type of retail location may not be available in a very urban area. A majority of the largest outlet malls in the United States are generally located 45 min to an hour away from the urban concentrations. Retailers selecting these locations have generally offset the inconvenience associated with the travel time by offering lower prices.

As is apparent from these examples, retailers are well aware that consumers when making a decision to go to a particular store weigh two critical resources – how much s/he is willing to expend in time (e.g., travel time) and money. Clearly, time, and money are valuable to customers (Becker 1965). As is evident from the old adage "Time is Money," consumers can indeed assess the value of their time (Marmorstein, Grewal, and Fische 1992). However, money, and time are not always direct substitutes for each other (e.g., Leclerc, Schmitt, and Dubé 1995; Monga and Saini 2009; Okada 2005; Okada and Hoch 2004).

We suggest that an alternative retail strategy to offering lower prices (to offset the travel time of visiting a store that is further away) is to provide customers a higher level of certainty that the merchandise will be available (i.e., reduce the uncertainty of experiencing a stock-out). The conceptual underpinnings of this strategy lies in past consumer research that has demonstrated that consumers' uncertainty about merchandise availability (or lack of it – stock-outs) affect their store patronage decisions (Fitzsimons 2000; Zinn and Liu 2008). We expect that travel time and merchandise availability will have an interactive effect. More specifically, we expect that travel time matters more when merchandise availability is uncertain (rather than certain).

Accordingly, we study the following issues in this paper. First, we examine whether consumers do indeed integrate information about travel time in a simple additive fashion with inherent retailer attributes such as merchandise availability or in a more complex, interactive way (as a consequence we are predicting an interactive effect as opposed to two main effects). Both an economic model and the experimental evidence of Study 1 are presented to lend insight into this issue. Second, we examine whether a store providing higher levels of merchandise availability (i.e., reducing the chance of a stock out occurring) can mitigate the competitive disadvantage associated with a remote store location by means of a merchandise availability guarantee (Study 2). Finally, in Study 3 we examine whether these effects

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generalize to a larger ticket item (examine both a $400 TV and a $4,000 TV).

Theory, model, and central proposition

We draw on insights from prior literature on consumers' time and money tradeoffs and decision making under uncertainty to develop our model and key predictions.

Time and money

When a purchase decision is under consideration, the consumer must weigh the time (e.g., travel) and money involved (e.g., Marmorstein, Grewal, and Fische 1992; Saini, Rao and Monga 2010). How an individual makes this allocation decision is constrained by the availability of these resources. Previous research suggests that consumers make allocation decisions by searching for an optimal combination of satisfaction based on the suboptimization of various needs (Feldman and Hornik 1981). Thus, when considering how much a consumer is willing to pay for a good, its value is a function not only of the good itself, but also the costs in terms of travel time to procure the good at a particular retailer.

The underlying question becomes how people value their time. There are different ways to value time. An economic perspective is that the value of one's time can be represented by one's after-tax wage rate (Becker 1965). But, in recent years, there has been increasing investigation into the relationship between time and money demonstrating that these two resources have psychologically distinct characteristics that affect each one's allocation (e.g., Mogilner and Aaker 2009; Saini and Monga 2008; Soman 2001; Zauberman and Lynch 2005). The result is that consumers do not treat time and money in the same fashion, even if normatively they should (e.g., Monga and Saini 2009; Soster, Monga, and Bearden 2010). For example, because money is more fungible than time, consumers find losing money to be less painful than losing time (Leclerc, Schmitt, and Dubé 1995).

Other research has demonstrated that because time is more ambiguous than money in terms of how it is measured, people feel less accountable for how they spend their time, and as a result prefer spending time (vs. money) on things such as hedonic goods, or high risk–high return lotteries (Okada 2005; Okada and Hoch 2004). Consistent with the findings on differences between spending time and money, research has also shown that investments of time and money are also not subjectively equivalent (DeVoe and Pfeffer 2007; Mogilner and Aaker 2009). Finally, research has demonstrated that consumer's place a much higher subjective opportunity cost on time than economic theory would suggest (e.g., Marmorstein, Grewal, and Fische 1992).

Thus, a number of factors are likely to affect the trade-off between time and money resources. The goals of this research are to understand the time/money resource allocation decision that a consumer makes when choosing between two retailers and how that allocation varies as a function of the other resources the consumer expects to use to procure the good.

The above discussion may be captured by the following consumer choice model. Consider two competing stores, 1 and 2, located at travel times, T_1 and T_2, respectively. Let the price of the product at Store 1 and Store 2 be P_1 and P_2. Given the product under consideration is the same, consumers receive the same baseline utility ($b_0 > 0$) from consuming the product obtained from either store. Consumer utility, U_j, from purchasing at store j, $j = 1, 2$, is divided into two additive components: deterministic (V_j) and random (ε_j). The deterministic component of a consumer's utility in purchasing Store 1s product is given by:

$$V_1 = b_0 - b_1 P_1 - b_2 T_1 \tag{1}$$

where $b_1, b_2 > 0$.

For simplicity, assume that Store 1 always stocks the product of interest, while there is a probability, θ, that the product is available (or $1 - \theta$ for out of stock) in Store 2. In other words, the deterministic component of consumer utility in Store 2, conditional on the product being available, is given by:

$$V_{2|Avail} = b_0 - b_1 P_2 - b_2 T_2 \tag{2}$$

On the other hand, if the product is out of stock, the corresponding utility is given by:

$$V_{2|Out} = -b_2 T_2 \tag{3}$$

Given the probability of out of stock in Store 2 is $1 - \theta$, the expected utility for a consumer, ex-post a store trip is given by:

$$V_2 = \theta V_{2|Avail} + (1 - \theta) V_{2|out} = \theta(b_0 - b_1 P_2) - b_2 T_2 \tag{4}$$

Following Ben-Akiva and Lerman (1985), assuming the errors, ε_1 and ε_1, are Gumbel distributed, we can model consumers' store choice decision as a binary logit specification where the probability of visiting Store 1, Pr_1, we get:

$$Pr_1 = \frac{e^{V_1}}{e^{V_1} + e^{V_2}} \tag{5}$$

The probability of visiting Store 2, Pr_2, is given by $1 - Pr_1$. Note that the logit specification nicely captures the interaction between the two stores' attributes without imposing a multiplicative functional form for the interaction terms. The point at which consumers would be indifferent between visiting either Store 1 or Store 2 is when $Pr_1 = Pr_2$, that is, $V_1 = V_2$. By substituting Eqs. (1) and (4), we get,

$$b_0 - b_1 P_1 - b_2 T_1 = \theta(b_0 - b_1 P_2) - b_2 T_2 \tag{6}$$

Rearranging terms and solving for the price a consumer would be willing to pay for the product at Store 2, P_2, is given by:

$$WP_2^* = \frac{-b_0(1 - \theta) + b_1 P_1 - b_2(T_2 - T_1)}{\theta b_1} \tag{7}$$

WP_2^* denotes the point of price equivalency, that is, it is the amount consumers are willing to pay for the product in Store 2, which compensates them for the likelihood of a stock-out as well as additional travel time, if any.

In developing our propositions below, we focus on comparative statics, that is, how does consumer "price equivalence point" at the second store, WP_2^*, change with some of the key model parameters, especially those relate to stocking probability, travel time, and the corresponding interaction. In essence, Eq. (7) is the outcome of a rational decision making process of a consumer. Below, we continue the framework of a rational consumer and use Eq. (7) to develop our results and the corresponding propositions. In our analysis, Result 3 is our key prediction. Accordingly, we derive the corresponding propositions and test them experimentally.

Travel time

The difference in distance between two stores must exceed some threshold limit before it is noticed by the consumer. If this difference is less than the "just noticeable" one, the consumer is indifferent between two alternatives (Devletoglou 1965; O'Sullivan and Ralston 1976). However, beyond that distance, the probability of choosing the closer of two stores is related in a logistic fashion to the difference in distances between the two (Fogarty 1977). This is reflected in the following result.

Result 1: Following Eq. (7), we find that "Consumer price equivalence point" at Store 2 decreases with the travel time to Store 2.

Proof: Taking the partial derivative of Eq. (7) with respect to driving time to Store 2, T_2, we get,

$$\frac{\partial WP_2^*}{\partial T_2} = -\frac{b_2}{\theta b_1} < 0. \tag{8}$$

Clearly, the above quantity is negative since b_2, a measure of price sensitivity, and b_1, a measure of time sensitivity, are positive. However, assuming that consumers decide which store to visit based on distance alone is too simplistic. Instead, spatial interaction models posit that the utility of a store to a consumer depends on the attractiveness of a particular store and the distance separating that store from the consumer (Craig, Ghosh, McLafferty 1984). The impact of this distance on shopping trip decisions is best reflected by travel time (Kang, Herr, and Page 2003). Consumers are likely to view the shopping opportunity from a holistic resource perspective and thus bypass the closest alternative if the extra effort of travel is compensated by better shopping opportunities. However, because a cost is borne to the consumer in travel time, we expect that the monetary outlay the consumer is willing to expend for the good will be less when the travel time is longer. Evidence in support of this prediction comes from outlet malls which are generally located farther away from where consumers live, but offer substantial savings on the products sold. Similarly, convenience stores reduce the travel time required, but can demand a price premium for the products they sell.

The impact of merchandise availability

In general, people do not like uncertainty. In attempting to procure a good, the greatest uncertainty a consumer faces is the availability of the good in a store. Research has shown that when people are committed to purchasing the out-of-stock item, they react negatively to a stock-out indicating less satisfaction with the decision process and a greater likelihood of switching stores on a subsequent shopping trip (Fitzsimons 2000). Stock-outs are not uncommon. In fact in a study of U.S. supermarkets (Anderson Consulting 1996), 8.2 percent of items, on average, were not available on a typical afternoon in eight categories examined, and 48 percent of items were out of stock at least once during the one-month study period. Typically, the duration of a stock out ranges from less than 8 h to more than 3 days (Gruen, Corsten, and Bharadwaj 2002). Additionally, stock-out levels tend be higher for promoted items, fast moving items, and at mass merchants (Gruen, Corsten, and Bharadwaj 2002; Taylor and Fawcett 2001). Here, we examine the impact of stocking probability on consumers' willingness to pay. Based on Eq. (7), we have:

Result 2: "Consumer price equivalence point" at Store 2 increases with the probability of merchandise availability at Store 2.

Proof: Taking the partial derivative of Eq. (7) with respect to probability of stocking at Store 2, *p*, we obtain,

$$\frac{\partial WP_2^*}{\partial \theta} = \frac{b_0 - b_1 WP_2^*}{\theta b_1} \tag{9}$$

The above quantity would be positive since the deterministic component of utility, $V_{2|Avail}$ (Eq. (2)) is positive. Note that when making resource allocation decisions in terms of how much consumers are willing to spend on a good, we should take into account the certainty that the good will be available in the store. Result 2 suggests that consumers are willing to pay more for higher stocking probability. Conversely, the higher the stocking probability at a store, the lower the price savings consumers would expect at that store. Just as consumers are willing to accept a smaller return for less risk (Tversky and Kahneman 1986), we expect that consumers will accept lower price savings to shop at a store where there is greater certainty that the item will be available.

The joint effect of travel time and merchandise availability

Normatively, a consumer's decision to expend time to achieve price savings entails a comparison of the expected costs and benefits of search. In cases where the consumer has learned that a particular store is often not available, this uncertainty is likely to be reflected in his/her shopping decision. The following discussion examines two alternative processes by which consumers might incorporate merchandise availability into their cost.

If the merchandise is available (i.e., no uncertainty about product availability), then the travel time to and from the store is likely to be viewed as a positive investment to attain the product rather than as a wasteful expense (Meyer 1994); thus, minimizing the negative effect of travel time. However, when the availability of the merchandise is uncertain, it is likely that consumers will view travel time as a potential wasteful expenditure, and as a consequence longer travel time will be viewed more negatively than a shorter travel time. In order to understand the role of uncertainty, using Eq. (8), we provide the following result:

Result 3: The impact of travel time to Store 2 on "Consumer price equivalence point" is moderated by the stocking probability in Store 2, that is, the effect of travel time on consumers' willingness to pay at store 2 will be less negative as stocking probability increases.

Proof: Taking the partial derivative of Eq. (8) with respect to the stocking probability in Store 2, θ, and simplifying, we get,

$$\frac{\partial(\partial WP_2^*/\partial T_2)}{\partial\theta} = \frac{b_2}{\theta^2 b_1} > 0. \qquad (10)$$

In other words, consumers are likely to view travel time as a greater cost under conditions of when the merchandise may not be available. Previous research has demonstrated that consumers compare costs relative to benefits to form evaluations (Marmorstein, Grewal, and Fische 1992; Ratchford 1982; Ratchford and Srinivasan 1993). For example, Marmorstein, Grewal, and Fische (1992) found that how consumers subjectively value time is a function of the opportunity cost of time. Ratchford and Srinivasan (1993) found that more time spent in cost search results in lower prices. Similarly, extensive search by consumers may also result in cherry picking (McAlister, George, and Chen 2009). We expect that in situations where the expected cost is higher (e.g., traveling to a retailer when there is uncertainty that the product will be available), consumers will expect greater price savings (the benefit of their search) to make traveling to the retailer worthwhile than in situations where less cost is perceived (e.g., traveling to a retailer when there is no uncertainty that the product will be available).

We propose that there will be an interaction between merchandise availability and travel time on the price savings required for customers to undertake a store visit. Consumers will expect a greater saving when the travel time is high and the merchandise availability is uncertain. We test this prediction next.

Experiment 1

Method

Design 64 staff members at a large U.S. university served as respondents for this 2 × 2 between-subjects experiment. The merchandise availability (certain: products are always in stock versus uncertain: products are in stock about half of the time) and the travel time to the store (shorter: 5 min vs. longer: 30 min) were manipulated.

Procedure. Participants were provided the following scenario: "Imagine your television has broken and you have decided to replace it today. While reading through the newspaper at home, you notice two ads (one for store *X* and one for store *Y*) for the exact brand and model that you plan to buy. Based on your past experience and information in the ads, your comparison of the two stores is as follows:" merchandise availability (store *X*: products are always in stock at the store; store *Y*: products are always in stock OR products are in stock about half of the time), driving time to the store and back (store *X*: 5 min; store *Y*: 5 min OR 30 min), and the selling price (store *X*: $400; store *Y*: not provided).

Participants were told the only sure way to find out the price of the exact model of the television set they are considering at store *Y* is to travel to the store. Further, they were asked to assume that Stores X and Y are similar in all other respects. Finally, they provided their willingness to pay at store *Y*, that is, "I would visit store *Y* if I expected the selling price to be no greater than ____".

Results

Hypotheses Tests. To test our hypotheses, we conducted a 2 × 2 ANOVA on expected selling price. There were main effects of travel time (M_{shorter} = $347, M_{longer} = $319; $F_{(1,60)} = 6.09$, $p < .05$ and merchandise availability ($M_{\text{uncertain}}$ = $316, M_{certain} = $350; $F_{(1,60)} = 8.85$, $p < .01$). Further, as hypothesized there was a two-way interaction for merchandise availability and travel time ($F_{(1,60)} = 4.76$, $p < .05$). Planned contrasts revealed that when there was stock uncertainty, participants expected to pay a lower price if the travel time was longer (M_{shorter} = $342, M_{longer} = $289; $F_{(1,60)} = 11.11$, $p < .001$). If there was stock certainty, participants' willingness to pay was not affected by travel time (M_{shorter} = $351, M_{longer} = $348; $p > .8$). These results support our prediction.

Discussion

In line with our prediction, we find support for the interaction between travel time and merchandise availability. These results suggest that retailers picking locations further from their customers can compete with retailers who have locations neared to their customers using merchandise availability instead of further discounting their merchandise. Our experimental data are consistent with model predictions.

An interesting point is that when the stock was 100 percent available, subjects did not want a significantly different discounted price. However, they expected about a $50 discount for an increased travel time of 5–30 min. Clearly, they are not behaving very rationally. These results are in line with Monga and Saini (2009), who have demonstrated that consumers are quite insensitive to search costs in terms of time as opposed to money. However, the exposure to the uncertainty of a potential stock-out makes them more sensitive to the possibility that their travel time could be completely wasted. Next, we examine whether the negative effects of longer travel time when the availability of stock is uncertain can be offset by offering merchandise availability guarantees. Our expectation is that merchandise availability guarantees reduce the uncertainty component.

Experiment 2: role of merchandise availability guarantees

Guarantees represent a promise from the retailer to the consumer and serve to reduce uncertainty. Guarantees do not involve monetary expenditures up front, yet credibly convey information that false claims would involve a direct cost to the firm (Kirmani and Rao 2000). These guarantees signal to the customer that the retailer is sincere in its intentions and as such serve to reduce uncertainty in the eye of the customer. Price matching guarantees offer assurance to customers that in case lower prices for an item are found elsewhere following the purchase, the retailer would refund the difference between the purchase price and the lower price found by the buyer. Thus, PMGs enable consumers to cope with their uncertainty of market prices by securing a lowest-price commitment from the retailer (Estelami, Grewal, and Roggeveen 2007; Dutta, Biswas, and Grewal 2011). Similar to product warranties, which focus on failures that might occur due to a product's non-price attributes, price-matching guarantees provide the consumer with a safety blanket in case a purchased product's price fails to be competitive in the marketplace.

Merchandise guarantees function in a similar manner. A merchandise guarantee is a promise made by a retailer that it will have a product available for purchase or else the retailer will compensate the consumer in some fashion for it being out of stock. For instance, Staples makes the following promise on its website, "Ink Toner Guarantee In Stock . . . If we're ever out of the inkjet or toner cartridge you need, we'll get you one with free delivery and $10 off. Or use the $10 toward a future purchase of that cartridge." The importance of providing adequate inventories and assuring their availability is important to consumers and retailers (Jing and Lewis 2011). Recent consumer research indicates that stock-outs lead to lost revenue on the sale of that particular item and an increased probability of canceling other items in an order (e.g., Anderson, Fitzsimons, and Simester 2006). Furthermore, stock-outs lead to customer dissatisfaction, can change a retailer's image, and undermine consumer loyalty (e.g., Breugelmans, Breugelmans, and Gijsbrechts 2006). Thus, a merchandise guarantee is a way to reduce uncertainty to customers and assure them that their visit will be worthwhile. As such, by offering a merchandise guarantee we expect the effect of uncertainty found in the travel time by merchandise availability interaction will be reduced. This prediction is tested in this experiment.

Method

Design. One-hundred-sixty-one graduate students received class credit for their participation in a 2 × 2 × 2 between-subjects experiment. The merchandise availability (certain: products are always in stock; uncertain: products are in stock about half of the time), the travel time to the store (shorter: 5 min; longer: 20 min), and whether a merchandise guarantee was offered (offered; not offered) are the manipulated factors.

Procedure. The procedure was similar to Study 1, except that the comparisons between store *X* and Y were as follows: merchandise availability (store *X*: products are always in stock at the store; store *Y*: products are always in stock OR products are in stock about half of the time), travel time to the store (store *X*: 5 min; store *Y*: 5 min OR 20 min) and the selling price (store *X*: $400; store *Y*: not provided). Also half the participants read the "You also know that store *Y* offers a merchandise guarantee. If a product is not in stock then it will be shipped to your home for no additional cost within 7 days." The other half of participants saw no information related to merchandise guarantee.

As in Study 1, participants were asked to indicate "I would visit store *Y* if I expected the selling price to be no greater than ____". In addition, participants completed manipulation checks by answering: "How certain do you feel that the product will be available in store *Y*" (1 = not at all certain, 7 = very certain), "In your opinion, how long was the drive time to and from store *Y*" (1 = extremely short, 6 = extremely long), and "Did store *Y* offer a merchandise guarantee?" (yes/no).

Results

Manipulation checks. In order to assess the success of our manipulations, we conducted a 2 × 2 × 2 ANOVA on the merchandise availability manipulation check. Participants felt more certain the product would be available in certain condition (5.0) than in the uncertain availability condition (3.4; $F_{(1,151)} = 51.25$, $p < .001$). A similar ANOVA on the travel time manipulation check revealed that participants felt the travel time was significantly less in the shorter condition than the longer condition ($F_{(1,151)} = 103.06$, $p < .001$). No other effects were significant in either ANOVA. Finally, 93 percent of participants in the merchandise guarantee offered condition knew that a merchandise guarantee was offered.

Hypotheses Tests. To test our hypotheses, we conducted a 2 × 2 × 2 ANOVA on expected selling price. There were main effects of travel time ($M_{\text{shorter}} = \$349$, $M_{\text{longer}} = \$336$; $F_{(1,152)} = 4.09$, $p < .05$) and merchandise guarantee ($M_{\text{offered}} = \$350$, $M_{\text{not offered}} = \$335$; $F_{(1,152)} = 6.29$, $p < .05$). Further, as hypothesized there was a three-way interaction for travel time, merchandise guarantee, and merchandise availability ($F_{(1,152)} = 5.14$, $p < .05$). Replicating the findings from Study 1, there was a travel time by merchandise availability interaction when no merchandise guarantee was offered ($F_{(1,152)} = 4.81$, $p < .05$). Planned contrasts in the no merchandise guarantee condition revealed that when merchandise availability was uncertain, participants expected to pay a lower price if the travel time was longer ($M_{\text{shorter}} = \$342$, $M_{\text{longer}} = \$311$; $F_{(1,152)} = 5.21$, $p < .05$). If there was no guarantee but product was available with certainty, participants were willing to pay the same regardless of travel time ($M_{\text{shorter}} = \$339$, $M_{\text{longer}} = \$347$; $p > .5$). More interesting is the result that when a merchandise guarantee was offered, the travel time by merchandise availability interaction was not significant ($p > .3$). Thus, these results support that a merchandise guarantee is sufficient to remove the impact of product uncertainty on the amount that consumers are willing to pay for a product from a more remote retailer.

Discussion

The results of the second study provide support for the hypothesized three-way interaction between travel time, merchandise guarantee, and merchandise availability. Consistent with Study 1, the results suggest that if a retailer has or builds a reputation for having merchandise available, consumers are willing to drive a distance to shop for that item and do not expect the price to be much lower. In addition, if the retailer offers a merchandise guarantee, the consumer is willing to accept the uncertainty that the product is immediately available and drive the distance to the retailer and not expect the price to be much lower.

However, in both of these studies, the television set was priced at $400. Will our results hold if we were to consider a higher price, such as $4,000? Past research has suggested that consumers might use a relative mindset to evaluate deals. A $100 savings on a $400 TV would be valued more than a $100 savings on a $4,000 TV (e.g., Grewal and Marmorstein 1994; Saini, Rao, and Monga 2010). Thus, in Experiment 3, we explicitly examine whether consumers expect a different relative discount for higher ticket items or the same relative discount.

Experiment 3

Method

Design. One hundred and eleven students at a large U.S. university served as respondents for this $2 \times 2 \times 2$ between-subjects experiment. The merchandise availability (certain: products are always in stock vs. uncertain: products are in stock about half of the time), the travel time to the store (shorter: 5 min vs. longer: 20 min), and the price of the product in store *X* ($400 vs. $4,000) were manipulated. The procedure was nearly identical to Experiment 1. The only differences were the price manipulation and the addition of manipulation checks. Theses checks were: The drive time to store *Y* was (5 minu, 20 min); The TV at store *X* was listed at ($400/$4,000); and the Products in store *Y* are in stock (about 50 percent of the time; 100 percent of the time).

Results

Manipulation checks. The manipulations all worked as intended: travel time ($\chi^2(1) = 43.33$, $p < .000$); price ($\chi^2(1) = 91.84$, $p < .000$); and certainty ($\chi^2(1) = 71.91$, $p < .000$).

Hypotheses Tests. Due to the price manipulation, to test our hypotheses, we first converted the expected selling price into a ratio of expected savings. This was done by taking the list price at store *X* minus the expected price at store *Y* (the dependent variable) divided by the list price at store *X*. We then conducted a $2 \times 2 \times 2$ ANOVA on the ratio of expected savings. As hypothesized, there was a two-way interaction for merchandise availability and travel time ($F_{(1,103)} = 4.02$, $p < .05$). Planned contrasts revealed that when there was stock uncertainty, participants expected more savings if the travel time was long ($M_{\text{shorter}} = 10$ percent, $M_{\text{longer}} = 18$ percent; $F_{(1,103)} = 5.30$, $p < .05$). If there was stock certainty, participants expected similar savings regardless of travel time ($M_{\text{shorter}} = 11$ percent, $M_{\text{longer}} = 10$ percent; $p > .5$). These results support our prediction. Importantly, the results show the proposed interaction of travel time and stock certainty holds regardless of the price of the product. The three-way interaction is not significant. These results also support the notion of the relative thinking – consumers expect the same relative percentage savings – around 18 percent when the travel time is longer and they are uncertain about the availability of the merchandise. Clearly, they expect a greater absolute amount on the larger ticker item (18 percent of $4,000).

Conclusion

Location is commonly cited as being the most important driver of retail success and thus a critical strategic decision for retailers. Prime retail locations offer easy accessibility and proximity to a large customer base which minimizes the time customers must invest in reaching the store location. However, prime retail locations are costly for retailers due to the high rent they must pay. Obviously, not all retailers can afford the high rents or find suitable space in these proximal locations. In such cases, the retailer may locate at a less convenient site and draw customers to their location via aggressive promotions or lower prices.

The advantage proximal locations offer for customers is the time savings in accessing the store. The drawback, of course, is the higher price that must be paid. However, there is an additional consideration which must also be accounted for – the certainty that a desired item will be available. Proximal locations minimize the time cost for customers if a product is not available. This highlights the need to incorporate the role of time and uncertainty as predictors of shopping behavior based on a retailer's location decision.

Utilizing insights gleaned from the marketing-logistics interface, we suggest that appropriate management of inventory and reduction of stock-outs could offer retailers at less convenient locations an additional tool with which to compete. We posited and found that the likelihood the merchandise will be available interacts with the amount of time it takes the consumer to travel to the store, affecting the price savings required to motivate a store visit. More specifically, if the retailer can ensure that items are in stock, consumers are more willing to travel to a less convenient location without much expectation of price savings. This indicates that retailers at more remote locations can compete not only via price savings, but by simply ensuring that the item is available. In order to achieve this, retailers must have efficient supply chains and inventory management systems.

Our results highlight the need for retailers to effectively communicate to their customers that they carry high levels of merchandise (e.g., merchandise stacked to the ceiling in large club stores). Additionally, future research could examine the psychological inferences that consumers make when they infer the lack of merchandise availability due to stockout versus scarcity (Parker and Lehmann, 2011). Given the growing importance of product returns (Petersen and Kumar 2009), which often require a store visit, it is especially important to assess the joint effects of location and the probability of returning the merchandise on customers' store choice as well as the price discount required to make a more remote store location attractive.

Although our first study demonstrates that offering high levels of merchandise is a competitive draw for retailers located a less convenient locations, the reality is that not all items will be in stock at all times. Our second study explores how a retailer can effectively counter this. Building on the guarantee literature (e.g., Kirmani and Rao 2000), we demonstrate that an in-stock merchandise availability guarantee can reduce the negative effects associated with the uncertainty a customer feels about traveling to a retailer with a remote location.

The results of our second study also demonstrate that if retailers were to offer a merchandise guarantee consumers are more inclined to accept the uncertainty associated with the stock-out and are willing to drive the distance to the retailer and not expect the prices to be substantially lower. In this study, we only examined the presence versus absence of the merchandise guarantee. In the broader domain of guarantees such as warranties and price matching guarantees, past research has examined additional dimensions of the guarantee such as the amount of the guarantee (100 percent of the difference vs. 120 percent of the difference), the redemption period, or the amount of the guarantee (100 percent of the difference vs. 15 percent of the difference) (Dutta, Biswas, and Grewal 2007). Thus, future research should investigate if the merchandise guarantee will have stronger effects if expedited shipping is offered.

Future research should also explore whether technology-based solutions can minimize the negative impact of stock-outs. For example, using the web or mobile applications, retailers can increase the transparency of merchandise availability prior to a customer even going to the store. For example, auto dealerships provide information about their used and new car inventory on searchable online databases. One might expect the availability of such a solution to operate in a similar fashion to the in-stock guarantee policy.

In sum, this research explored whether there are non-price options these retailers can utilize to compete more effectively with more proximal retailers. Our results indicate the maintaining high inventory levels and offering merchandise guarantees are effective strategies. However, there are numerous other non-price options that retailers could potentially adopt in order to save consumers time and effort. Some of these could involve time saving strategies such as valet parking, consistent and easy to follow store-layouts, and a higher concentration of service personnel to answer questions and facilitate the shopping experience. All of these offer opportunities for future research.

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