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Price Awareness and Consumers' Use of Deals in Brand Choice☆

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Abstract

There is evidence that consumer knowledge of prices is limited, implying that, on occasions, consumers may not be fully informed of prices when making a brand purchase. On such occasions, how do consumers make their brand choice decision? One possibility is that consumers use their expectation of prices. This raises an interesting question. To what extent is brand purchase either a function of preferences and posted prices or, of preferences and expectation of brand prices? Another important issue relates to the role of displays and features in simplifying consumer brand choice. First, do promotions cause consumers to restrict their attention to only promoted brands? Second, do promotions affect the price aware consumers more than the price unaware consumers? Our study uses scanner data on ketchup and peanut butter categories to answer the foregoing questions. We find that between 40 and 50% of the purchases are made by consumers using expectations of prices rather than posted prices. Consumers using price expectations may be thought of as being "unaware" of prices. We also find that promotions cause some consumers to focus exclusively on promoted brands, and this effect is greater on the price aware consumers than on the price unaware consumers. Our findings have an important bearing on the rationality of consumer expectation of prices, especially of the promoted brands. Price aware consumers act as a check against firms promoting without accompanying price cuts.
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Keywords: Brand choice; Price aware consumers; Price unaware consumers

Introduction

Research questions

Brand choice models estimated using scanner data implicitly assume that consumers make a purchase after considering the prices of all brands. However, there is evidence that consumer knowledge of prices is less extensive (Dickson and Sawyer 1990), implying that consumers may not be fully aware of prices when making a brand purchase. Further, viewing the consumer as an economic agent it is reasonable to suppose that if obtaining price information is costly, consumers might choose to remain unaware of prices, an idea going back to Stigler (1961). Since obtaining price information usually requires an allocation of time by the consumer, it is a costly activity in the sense of Becker (1965). Further credible brands have been shown to reduce price sensitivity making it less important for brand loyal customers to evaluate price at every purchase occasion (Swait and Erdem 2007). Thus some consumers, at least some of the time, are unaware of prices but nevertheless engage in brand purchase. This raises an interesting question: How is such a purchase made even though the consumers do not know the exact prices? One possibility is that the consumer has an expectation of prices of various brands and uses these expectations in brand purchase. The research question is: to what extent is brand purchase either a function of preferences and actual prices, or, of preferences and expectation of prices? Said differently, what fraction of the market can be classified as "price aware" or "price unaware", on any given occasion? One purpose of this paper is to provide an answer to this question.

The "deal", or temporary price reduction, on frequently bought consumer goods is ubiquitous. It is also common practice for these price reductions to be accompanied by newspaper advertising or feature, displays of merchandise in the store, or small signs on the shelf in the form of "shelf-talkers". A natural question to ask is: how does a display or a feature, by making *some* information less costly for consumers, affect brand choice?[2] In particular, do consumers use displays and features

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[2] Deals may have other effects such as consumer stockpiling. Here we are not concerned with such effects.

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to simplify their brand choice process? For example, Fader and McAlister (1990) have found that some consumers may restrict their attention to brands with displays and features (i.e., promoted brands). Presumably, the promotions act as a signal for price reduction (Inman, McAlister, and Hoyer 1990). We want to go one step further and ask if such a restriction would be rational for consumers *and* firms. Clearly, if promotions are accompanied by price cuts, then consumers potentially benefit from restricting their choice set, and thereby save the cost of information search. Should firms lower prices when they have a display or feature?

The theoretical work of Salop and Stiglitz (1976) shows that greater the proportion of price aware (informed) consumers, the lower is the price. They argue that the informed consumers act as a check on the firm's ability to charge high prices. In the context of our paper, this has the following implication. A firm's ability to announce a promotion without an accompanying price cut is reduced if a majority of the consumers who restrict their choice set under promotions is in the price aware segment rather than in the price unaware segment. This leads to the empirical question: Do promotions affect price aware consumers more than price unaware consumers?

The answer to the foregoing question is important because it tells us whether or not consumers' decision to restrict their choice set to promoted brands is rational. If such restriction of choice set is made by those who are generally more aware of the price of the promoted brand rather than by those who are unaware of prices, then we can invoke the Salop–Stiglitz argument that firms will have to keep prices low when offering promotions. And this, in turn, would make it sensible for consumers to limit their search when they encounter a promotion. Note that in the above argument a consumer may be aware of prices on many but not all occasions.

Finally, since we know that consumers, or households, are different in their cost of time and returns to being informed of prices, we may suspect that whether or not a consumer is aware of actual prices would depend on the household characteristics such as income and family size, and a general propensity to look for deals. An understanding of these determinants of the response to deals would provide insights into consumer behavior and also be potentially useful for mangers in segmentation and implementation of merchandising programs. This paper provides such an understanding.

The proposed model demonstrates that about 40% of the purchases are made without consideration of prices of any brand. Further, 73% of the price unaware consumers do not restrict their choice set in response to a price promotion. These results are consistent with prior results reported from survey data. By demonstrating a method to identify these price unaware customers from scanner panel data, we provide a way to segment the market based on price awareness and use the linked demographic characteristics to identify and cater to the needs of the price aware and the price unaware customers differently. Scanner data based analysis allows managers to link customer behavior to firm revenue, and other outcome metrics. We have highlighted the fact that a major challenge for managers is to find ways to attract the attention of the price unaware segment, when you have lower prices.

Relevant literature

Guadagni and Little (1983) first modeled brand choice as depending on the utility of a brand to a consumer that is a function of its price, display, feature, and loyalty variables. There are numerous adaptations of their brand choice model in the literature (Bucklin and Lattin 1991; Gupta 1988; Kamakura and Russell 1989; Krishnamurthi and Raj 1988; to name a few). Most authors model the utility function of the consumer as a function of displays and features and find that these promotional variables positively affect the utility and hence, the brand choice. The justification for the inclusion of promotion variables in the utility function has not been explicitly discussed. Ostensibly, promotions act as a signal for price reduction (Inman et al. 1990) and thus reduce search costs of consumers making it unnecessary to evaluate all the prices if consumers know that an acceptable brand is on promotion. Another possibility is that deals may provide psychological benefits to customers in terms of "thrill" or *transaction value* (Grewal, Monroe, and Krishnan 1998; Lichtenstein, Netemeyer, and Burton, 1990) and thus provide positive utility to customers, independent of the price effects. Marmorstein, Grewal, and Fishe (1992) used a survey and an experiment to show the subjective value of time spent in shopping included the enjoyment of shopping for durable goods. Grewal et al. (1998) show that the perceived transaction value, defined as the satisfaction of taking advantage of a price-offer or deal, is affected by the internal reference price. They show that the perceived transaction value, in turn affects a consumer's willingness to buy, propensity for search, and acquisition value.

Models of consideration set formation (Hauser and Wernerfelt 1989; Roberts and Lattin 1991) suggest that consumers may not evaluate all the brands that are available on a given occasion. Fader and McAlister (1990) suggest that the promotions may help in defining the subset of brands that a consumer may choose to evaluate on a purchase occasion by excluding from consideration non-promoted brands that would not be excluded in the absence of promotions. Siddarth, Bucklin, and Morrison (1995) find that promotions may expand a consumer's consideration set by including a promoted brand that is not otherwise part of the consideration set. In summary, it appears that promotions reduce search costs of consumers by defining the set of brands that they need to evaluate on any given occasion. Models of consideration set formation include methodological advances, such as use of MCMC methods (Chiang, Chib, and Narasimhan 1999) and use of GEV distribution (Swait 2001). Further, consideration set may be influenced by other factors such as brand credibility (Erdem and Swait 2004; Swait and Erdem 2007), a phenomenon that we do not study here.

Researchers are using scanner data choice models to integrate and test the insights obtained from behavioral research. The reference price literature pioneered by Winer (1986), consideration set models (Bronnenberg and Vanhonacker 1996), and the work on the effect of price endings (Stiving and Winer 1997) are good examples of such integrative studies. Our study is a similar attempt to study price awareness and the role of promotions. Studies on consumer heterogeneity account for unobserved