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Brand Loyalty and Price Promotion Strategies: An Empirical Analysis☆

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Abstract

Though brand loyalty has been studied extensively in the marketing literature, the relationship between brand loyalty and retail pricing strategies is not well understood. Designing promotion strategies involves two key decisions: the percentage reduction in price from the existing price point (depth), and the frequency with which a product is promoted. These decisions, in turn, are critically dependent upon how many consumers can be convinced to switch to a brand by temporarily reducing its price, and how many are instead brand loyal. Theoretical models of how the strength of brand loyalty influence optimal promotion strategies have been developed, but there are no rigorous tests of their hypotheses that take into account wholesale price variation. We test how brand loyalty impacts promotion strategies for two frequently purchased consumer packaged good categories. Our results confirm that retailers promote strong brands shallower and more frequently compared to brands with weak loyalty. Our results highlight the importance of carefully modeling wholesale prices when testing behavioral models on retail pricing.

Keywords: Price promotion; Brand loyalty; Discrete choice model; Ice cream; Carbonated soft drinks

Introduction

Recent estimates indicate that consumer packaged good manufacturers allocate fully 58% of their marketing expenditure toward sales promotion (Low and Mohr 2000). Although not all of this investment is passed through to consumers by retailers, the importance of retailers' promotion decisions to their own economic performance is clear. What drives promotion by retailers, however, is only partly understood. While much of the early research focused exclusively on demand-side explanations for observed promotion behavior (Varian 1980; Butters 1977), more recent studies combine cost and demand considerations (Agrawal 1996; Gedenk and Neslin 1999; Raju, Srinivasan, and Lal 1990). Explaining how retailers make promotion decisions, and what these decisions are, is critical to understanding the retailing function more generally. In general, we know that retailers promote products because they can derive higher margins by price discriminating between groups of high and low demand. One way of defining high versus low demand considers whether consumers are brand loyal. Consumers often express loyalty to a particular consumer packaged good (CPG), so this study provides an empirical examination of how brand loyalty influences retail price-promotion decisions in two highly differentiated, frequently-purchased CPG categories: carbonated soft drinks (CSD) and ice cream.[1]

There are a number of competing theories as to how price promotions work, but common among them is the notion that the market can be segmented into groups of consumers that vary by the strength of their demand. Strength of demand, in turn, depends on whether the consumer is: informed or uninformed (Burdett and Judd 1983; Carlson and McAfee 1983; Varian 1980), high search-cost or low search-cost (Rob 1985; Stigler 1961), high or low willingness-to-pay (Jeuland and Narasimhan 1985; Pesendorfer 2002), high inventory-cost or low inventory-cost (Aguirregabiria 1999; Blattberg, Eppen, and Lieberman 1981) or are loyal to a brand or store (Agrawal 1996; Lal and

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[1] A household is defined as being loyal to the brand that it is most likely to buy on each purchase occasion, controlling for all other factors that may influence purchase probability (Agrawal 1996). Strength of loyalty refers to the size of the price differential between a consumer's preferred brand, and one that is less preferred, before he or she will switch brands.

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Villas-Boas 1998; Raju, Srinivasan, and Lal 1990; Villas-Boas 1995). Promotions, or sales, allow retailers to price-discriminate between the two groups. For frequently-purchased consumer goods, however, information or inventory-based explanations are not likely given the nature of the product, so loyalty or intensity of demand is the more plausible explanation. Moreover, because loyalty and intensity are empirically similar according to the definition used by Agrawal (1996), we focus on brand loyalty to explain two aspects of promotion design: *depth* which is defined here as the percentage reduction in price from the existing price, and the *frequency*, or average number of times an individual brand is promoted over a specified time period (a year for example) (Raju 1992; Srinivasan et al. 2004).

Recognizing the connection between brand loyalty and promotion is not new. Raju, Srinivasan, and Lal (1990) develop a theoretical model of manufacturer competition that explains how differences in consumer loyalty leads to variations in the depth and frequency of price promotions offered by brands in the same product category. Recognizing that consumers buy from retailers, not manufacturers, Agrawal (1996) extends the theoretical model of Raju, Srinivasan, and Lal (1990) to include pricing behavior by retailers and the effect manufacturer advertising levels have on retailers' promotion decisions. His model suggests that a retailer will offer deeper discounts for brands with little brand loyalty, but promote them less often. Similarly, Jing and Wen (2008) assume consumers will switch to a preferred brand given a sufficient price discount, but also include the possibility of a consumer segment that is completely price sensitive. They find that the equilibrium promotional strategy depends critically on brand strength and the number of price sensitive consumers, therefore, models of brand loyalty and promotion should allow for switching behavior by consumers. We allow for both loyalty and brand substitution in our empirical models of CSD and ice cream demand.

It is also well-understood that retail pricing is strongly influenced by wholesale prices, although retail pass-through is not necessarily perfect (Nijs et al. 2010). This observation presents an empirical problem for researchers interested in explaining retail pricing decisions, however, as wholesale prices are rarely observed (Berto Villas-Boas 2007). Consequently, we estimate a model of vertical pricing relationships in both the CSD and ice cream markets to recover wholesale prices under only weak assumptions regarding wholesaler and retailer conduct. In this way, we are able to isolate changes in retail prices that are due solely to profit-maximizing decisions by retailers, conditioned on the prices they pay to wholesalers.

We empirically model the relationship between the strength of brand loyalty and retail promotion decisions, while controlling for variation in unobserved wholesale prices. Retailers are assumed to make two related decisions when promoting a particular brand: (1) the depth of the promotion, and (2) the frequency of promotions for that brand. As such, our study contributes to the literature on retail pricing and brand loyalty. Namely, our study is the first to investigate how brand loyalty affects the key decisions retailers face in designing promotions (depth and frequency) while accounting for variation in unobserved wholesale prices. While others admit the central role played by wholesalers in the retail promotion decision, none incorporate wholesale price information into their empirical analysis. Unobserved wholesale prices are included in our analysis using methods recently developed in the empirical industrial organization and quantitative marketing literatures.

This empirical framework allows us to test a number of hypotheses that emerge from the theoretical literature on the relationship between brand loyalty and the depth and frequency of promotion. The first hypothesis is that the average price discount at the retail level is negatively related to the strength of brand loyalty (Agrawal 1996). The second maintains that the frequency of price promotions is positively related to the strength of loyalty (Agrawal 1996). Our findings broadly support both hypotheses, even after controlling for variation in wholesale prices. The intuition behind these findings is straightforward – if retailers deeply discount strong brands, they not only forgo the price premium, but also the potential margin made on the weaker brand. Promotion decisions made by retailers differ from those made by manufacturers (Raju, Srinivasan, and Lal 1990), because retailers are concerned with category profit and not the profit from individual brands.

The remainder of the paper is organized as follows. In the next section, we provide a theoretical justification for the hypotheses tested with the empirical model. In the third section we describe the empirical techniques used to determine the relationship between brand loyalty and retail price promotions. We start by giving a general overview of the section followed by a description of the household demand model used to measure brand loyalty, then the market demand model used to estimate the wholesale prices paid by retailers. We conclude the third section with a detailed explanation of the retail price promotion models. The fourth section describes the econometric methods used to estimate each of the models. The fifth describes the data used in our empirical application while the results are presented in the sixth section. The final section concludes, offering some implications for the interaction between brand loyalty and promotional relationships in practice, and provides suggestions for future work in the area.

Theoretical brand loyalty background

In this section, we summarize the theoretical model of Agrawal (1996) and its predictions for retail price behavior. The model assumes two competing manufacturers sell through a common retailer.[2] The manufacturers play a three-stage game. In the first stage, they set advertising levels simultaneously without knowing each other's strategy. In the second stage, they quote wholesale prices to the retailer without knowing their rival's offer, but observing the prior stage advertising decisions. In the third stage, the retailer decides the prices to sell to the consumer and whether a price promotion is offered on one or more brands after observing wholesale prices. The market consists of consumers who are loyal to either one brand or the other, but can

[2] Although this abstracts from strategic pricing behavior by retailers, there is empirical evidence that retailers behave as local monopolists (Slade 1995).