Journal of Retailing 93 (3, 2017) 283–303

An Empirical Analysis of the Impact of Promotional Discounts on Store Performance

Dinesh K. Gauri [a,*], Brian Ratchford [b], Joseph Pancras [c,1], Debabrata Talukdar [d]

[a] Walton College of Business, University of Arkansas, Fayetteville, AR 72701, United States
[b] University of Texas at Dallas, 3.707, 2601 N Floyd Road, Richardson, TX 75083, United States
[c] University of Connecticut School of Business, Marketing Department, 2100 Hillside Road, Unit 1041, Storrs, CT 06269, United States
[d] School of Management, 215 E Jacobs Center, Buffalo, NY 14260, United States

Available online 23 June 2017

Abstract

The received wisdom, reflected in popular marketing textbooks, is that featuring deeply discounted items will generate additional store traffic for retailers that in turn will lead to increased sales and profits. However, there is surprisingly little systematic evidence about the impact of these deep discounts on aggregate store traffic, sales, and profits. In this paper, we study the effects of promotional discounts and their characteristics on various store performance metrics employing a store level dataset pooled over 55 weeks and 24 stores. Many findings of our study lend credence to the continued popularity of such promotions by retailers. We find that feature promotions build store traffic, especially when the categories being featured are high penetration, high frequency. Also, promotions of branded items are found to be more effective than promotions of unbranded items. Discounting on more items in a category leads to lower store margins suggesting that the cost of discounting a large proportion of items in a category may not be justified by the profits generated by the sale. Using the coefficients from our model estimates, various counterfactuals provide insights into strategic change in level of discounts across categories. We discuss several implications of our findings for retailers.

Keywords: Promotional discounts; Store performance; Loss leader; Store flyers

Product promotions are an important element of competitive dynamics in retail markets with retailers using a myriad of promotion techniques to attract consumers. According to Progressive Grocer (2015), discounts and promotions contributed to more than 25% of revenue for a typical consumer goods. The "deep discount" promotion strategy, in which some items are promoted at deep discounts in an effort to attract customers who will buy more profitable items once inside the store is widely used by retailers (Bliss 1988; Drèze 1995; Lal and Matutes 1994) and is also mentioned in leading textbooks and in the popular press. For example, the leading retailing text by Levy, Weitz, and Grewal (2014) authors mention that leader or deep discount pricing involve a retailer offering deeper discounts on certain items to increase customers' traffic or boost sales of complementary products. This reflects the traffic building objective of promotional discounts, and the authors further state that the best items for leader or deep discount pricing are frequently purchased items or well-known brand names.[2]

It is also the case that most retailers in practice use feature advertising to increase store traffic and to communicate through the store flyers (or circulars) in their target market. Feature advertising is estimated to reach about 50 million households and it also generated about 5.84 billion dollars as revenues for newspapers in 2014 (WSJ 2015). These flyers do serve as an important medium to make shoppers aware of the deals and promotions despite a general trend of decreasing newspaper readership (WSJ 2015). As has been noted by many authors in past academic research (e.g., Ailawadi et al. 2006; Kumar and Leone 1988; Narasimhan, Neslin, and Sen 1996), feature advertising is the

* Corresponding author.
E-mail addresses: dkgauri@uark.edu (D.K. Gauri), btr051000@utdallas.edu (B. Ratchford), joseph.pancras@business.uconn.edu (J. Pancras), dtalukda@buffalo.edu (D. Talukdar).
[1] Fax: +479-575-8407.

[2] Similar statements are made by Hess and Gerstner (1987) and Rao and Syam (2001).

http://dx.doi.org/10.1016/j.jretai.2017.06.001
0022-4359/

vehicle for communicating the existence of the promotion outside the store, making featured promotions the main driver of any increase in store traffic.

Given the widespread use of retail promotions and the magnitude of the dollars spent on them, managers and academicians have a great interest in understanding how consumers react to such promotions as well as what types of promotions retailers should focus on in order to improve their store performance (Ailawadi et al. 2006; McAlister, George, and Chien 2009). Not surprisingly, there has been a significant stream of empirical research in the literature on the effects of promotions. This literature shows that price promotions do indeed lead to considerable increase in brand and category sales (Bucklin, Gupta, and Siddarth 1998; Bell, Chiang, and Padmanabhan 1999; Chiang 1991; Gupta 1988; van Heerde, Leeflang, and Wittink 2004, etc.). While most studies of the impact of promotions focus on the brand and category levels, there has been relatively little research on their impact on multiple metrics of store performance such as overall store traffic, sales, and profits. Actual systematic empirical evidence in favor of the statements about traffic building and about items or categories that are the best leaders remains scant and mixed, and it contrasts sharply with the continued popularity of such promotions.

The objective of this study is to undertake a systematic empirical study of the impact of price promotions on different measures (traffic, sales per transaction and profit margin) of store performance in the context of grocery supermarkets. In this study we focus on promotional discount characteristics, such as depth (size of discounts), and breadth (number of items promoted), role of feature and category characteristics such as penetration, frequency, storability, and impulse buying on these important store performance metrics. While Walters and Rinne (1986) and Walters and MacKenzie (1988) studied the impact of loss leaders on traffic, sales and profits at the aggregate store level, more recent studies have tended to focus more on the effects of promotions in specific categories on store level variables.

Our research focus is on measuring the effects of factors influencing key store level metrics such as sales, traffic, and profit margin. These metrics are aggregated for a typical grocery retailer across numerous different categories of packaged goods, which can number in the hundreds. Typical empirical approaches used in marketing such as those examining the effect of promotions on market-share study the effects of brand promotions within a category. Previous research has pursued the logical extension of such single category analysis to the analysis of multiple categories. While such studies can be insightful, they are necessarily going to be limited in scope due to the dimensionality issue, which is that as the number of categories increases, the model complexity and number of coefficients to be estimated mushrooms to the extent that the analytical framework becomes unwieldy. This limitation of previous modeling approaches can be ascribed to what we term a 'bottom-up' approach to analysis, where the starting point for analysis is promotions for brands within a category and the response to promotions at the brand level. This limitation in scope due to the dimensionality issue has a non-trivial implication for research on retailing issues, that is, that metrics that are of paramount importance to retailers, such as store level sales, traffic, and profits are not going to be examined in a holistic fashion. Instead these metrics may be studied at the level of specific categories or small clusters of categories, especially where the clusters of categories have some logical demand-side linkage, such as complementary and substitute categories. However, we argue that such studies are missing the wider analysis that is required to ascertain drivers of metrics that retailers really care about, which are sales and profits at the store (not individual category) level.

In this paper, we develop what we term as a 'top-down' approach to analyzing drivers of store level performance metrics. This method applies the characteristics approach that has more commonly been used in individual choice models to deal with large number of alternatives such as numerous packaged goods stock keeping units (Fader and Hardie 1996), in conjunction with the simple but powerful premise that individual categories contribute to overall store level performance metrics through a weight that is derived from the category's share of overall store sales.

We employ regressions of traffic, average spending,[3] and margins on promotions taking place in 27 different categories. To eliminate the need to have 27 independent variables, and to obtain insights into category-specific factors that determine promotion effects, we specify the effects as being a function of few important category characteristics, such as penetration, frequency, storability, and impulse buying, and of promotion characteristics, such as depth (size of discounts), and breadth (number of items promoted). We also account for competition by incorporating information on the effects of competitive discounts that are featured in the major competitor's promotional flyer. The data for our study come from a large regional U.S. supermarket chain, and comprises all transaction data over 55 weeks across the 27 product categories in 24 stores of the chain. We supplement the transaction data with weekly store flyer data and weekly advertising data from both the focal and competing stores.

Our results validate the widespread use of price promotions supported by feature advertising that provides beneficial impact on key store performance metrics. They also provide guidance to retailers on how to strategize their promotions across categories to maximize response on key metrics. We find that feature promotions build store traffic, especially when the categories being featured are high penetration, high frequency. All else equal, discounts on branded items are found to have a stronger impact on sales per transaction than discounts on unbranded items.[4] Our richer multi-category dataset reveals that consumers taking advantage of deep promotions in impulse categories tend to exhibit spillover to more profitable categories. Consumers buy more storable categories when there are deep discounts, though these do not translate to profitable spillovers, consistent with the literature on stockpiling (Ailawadi et al. 2007). Feature

[3] Note that sales per transaction and average spending are used interchangeably.

[4] The unbranded items are mainly fresh foods—produce, baked goods, meat, fresh seafood.