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Price discounts or coupon promotions: does it matter?

V. Kumar[a,*], Vibhas Madan[b], Srini S. Srinivasan[b]

[a] Department of Marketing, ING Center for Financial Services, School of Business Administration, University of Connecticut, Storrs, CT 06269-1041, USA
[b] Bennett S. LeBow College of Business, Drexel University, Philadelphia, PA, USA

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Abstract

This article shows that in a model of exogenously given sales expansion target with a dominant manufacturer, the relative profitability of coupon and price-reduction schemes depends on the values of coupon redemption rates and the equivalence ratio of price reduction to coupon face value. It is also shown that retailer's margin has an uncertain impact on the compensation constraint on the manufacturer's choice between the two schemes. However, higher retailer's margin increases the likelihood that the chosen sales expansion scheme (SES) is the one that generates higher consumer welfare. A sales response model is used to estimate the equivalence ratio and critical coupon redemption rate below which the manufacturer will prefer a coupon promotion. A sensitivity analysis of the manufacturer's decision reveals that changes in the magnitude of the retailer's margin have little impact on the manufacturer's choice between alternative SESs.

Keywords: Sales expansion schemes; Coupon promotion; Price promotion; Relative profitability; Consumer welfare

1. Introduction

Brown (2001) reports that 248 billion coupons were distributed in the year 2000 and 4.5 billion of them were redeemed for a total savings of US$3.6 billion. P&G's (1997) zero-couponing experiment in upstate New York drew fire from the state attorney general, and even P&G used 55% more free standing inserts in 1999 than in 1998 (*Promo Magazine*, 2000). Previous research in economics and marketing has explored the impact of coupons on brand performance. The impact on profits and welfare of simultaneous price and coupon promotion schemes has also been analyzed (Gerstner and Hess, 1991). Prior research in the marketing field has looked at the impact of consumer promotions on manufacturers' profitability (Leone and Srinivasan, 1996; Neslin and Shoemaker, 1983) and the impact of retailer promotions on retailer profitability (Inman and McAlister, 1993; Hoch et al., 1994).

Marketing organizations typically prepare sales forecasts and set up sales quotas for different strategic business units (SBUs), and the SBUs are required to achieve the targeted sales level in an optimal manner (Anderson et al., 1992; Walker et al., 1977). As Challagalla and Shervani (1996) note, sales quotas are also an important device in the strategic planning and control of marketing activities. Importantly, the theoretical work on the subject focuses on optimal price or coupon decisions where the profit-maximizing sales levels are determined *endogenously*. Lessons from such analyses are not directly transferable to marketing situations where sales targets are set *exogenously* (predetermined sales target).

In this article, we develop a framework for analyzing the relative profitability of coupon offerings and price reductions for an exogenously given sales expansion target. Specifically, this research looks at the profitability of the manufacturer and the retailer subject to the condition that an exogenously given sales target is achieved. This differs from the traditional approach where the focus is on maximizing profits irrespective of the sales volume achieved. In addition, in this research, we do not focus on the retail pass through of the trade deals—instead we calculate the minimum level of trade promotional dollars the retailer will require to initiate the desired sales expansion scheme (SES).

From the manufacturer's perspective, the profitability of the couponing operation is a function of both the incremental sales generated by the coupon and the number of

* Corresponding author. Tel.: +1-860-486-1086; fax: +1-860-486-8396.

E-mail address: vk@sba.uconn.edu (V. Kumar).

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coupons redeemed (Leone and Srinivasan, 1996). The profitability of the price promotion strategy is a function of the sensitivity of sales to the price reduction. The manufacturer decides between a coupon promotion and a price promotion strategy depending upon their relative profitability. Thus, this decision depends upon the *relative* sensitivity of sales to coupons and price reductions (which is defined by the equivalence ratio, θ, and the coupon redemption rate, α). This research is an attempt to provide insights into this issue. The article is organized as follows. Section 2 provides the motivation for the study. The analytical model used to evaluate the impact of promotions on manufacturer and retailer profitability is presented in Section 3. In Section 4, we present an empirical application of the model. The analysis is summarized and the main conclusions are provided in Section 5.

2. Motivation for the study

Research on sales promotions has shed much light on the effects of price promotions on brand sales (Kumar and Leone, 1988) and market share (Kumar, 1994). Additional research focusing on the frequency and scheduling (Kumar and Pereira, 1995) of promotions indicated that the timing of promotions is critical to achieve the desired goals. An interesting twist to the whole phenomenon on promotions is the relative effectiveness of the different forms of promotions (Kumar and Pereira, 1997). While there is evidence on the effects of coupon promotions on brand sales and on coupon elasticity (Leone and Srinivasan, 1996), there is no guidance offered in the literature as to whether a manufacturer should offer price promotions or drop a coupon to achieve the desired sales target.

This research is an attempt to identify conditions under which a price discount could be better (or worse) relative to coupon promotions in achieving sales target. Manufacturers spend huge sums of money in an attempt to influence retailer support of their brands with retail promotions (Hardy, 1986). However, because retailers are not legally required to "pass through" these trade incentives as retail promotions, the retail promotional support for a brand varies across retailers. Thus, it may be better for manufacturers to offer coupons in certain instances so that the benefit goes to consumers.

Unlike data on brand sales and coupon redemption rates, data on coupon profitability are difficult to obtain. Even brand managers do not have good methods for computing the overall profitability of coupon promotion programs (Neslin and Shoemaker, 1983). Further, manufacturers are reluctant to disclose profitability data. To overcome this limitation, we propose a framework to evaluate the comparative profitability of coupon offerings and price reductions, by estimating the *equivalence* relationship between coupon drops and price reductions that yield the same expansion in sales. We then empirically explore the proposed analytical model using scanner data that contain store-level information on weekly sales, prices, and coupon face values. We can calculate a range of α values, which define the manufacturer's preferences over the SESs. A sensitivity analysis will show how this range of α values will change with variations in the retailer's margins. In addition, as we will show later, the main results of the empirical analysis reflect that the actual values of the equivalence ratio are extremely small. This implies that changes in the magnitude of the retailer's margin have little impact on the manufacturer's choice between the two SESs.

3. The model

The theoretical model develops a framework for analyzing scenarios such as one in which the marketing manager of the manufacturer (M), the dominant player, is faced with an exogenous sales target. His objective is to maximize profits while achieving the sales target. The manager can choose to either drop a coupon or induce a price reduction from the retailer (R), the subordinate player, by providing suitable monetary compensation. We identify the conditions under which the retailer will need to be compensated in order to go along with the manufacturer's decisions. However, in the event of price reductions, depending upon the price elasticity of sales of the brand, the manufacturer may or may not generate adequate incremental contributions to compensate the retailer to go along with its decision. It is also shown that a change in the retailer's margin has an uncertain impact on the restrictive nature of the retailer-compensation requirement. We also explore the impact of nonconstant marginal costs on the manufacturer's choice between the two SESs. While the slope of the retailer's marginal cost has a systematic impact on this choice, the slope of the manufacturer's marginal production costs has no impact on the choice between the two SESs. The analysis also reveals that the two SESs are associated with different levels of consumer welfare and the SES that maximizes the manufacturer's profitability does not necessarily generate the higher welfare outcome for the consumers.

Consider a manufacturer (M) whose objective is to increase the sales of her product from a lower level q_L to a higher level q_H. We focus on a scenario where the product is sold to the consumers through a retailer (R). Let the shelf price of the product when the sales level is q_L be P_L, P_L being exogenously determined by R. However, with a targeted sales level and a full information framework, if we assume that the retailer always ends up selling the targeted sales level, the retailer's price is really being predetermined by M through its choice of the sales level. To increase the sales to q_H, M considers two alternatives. In the first alternative, the price is kept at P_L but M drops a coupon of face value V. The consumers who redeem the coupons pay a lower price while those who do not pay the