

Sales promotion schemes and purchase decision modeling using Logistics regression

Seemant Kumar Yadav

IBM, GLA University Mathura

Abstract

The role of sales promotion in improving business performance is an essential tool of marketing. A marketer can offer a wide range of such promotion schemes to its customers which may include, discount, gift, membership discount schemes, and preordering sales promotion schemes. These schemes stimulated more sales because customers find them more attractive and value driven. Present research identifies the most significant sales promotion schemes in order to get favorable purchase behavior. For the purpose the logistics regression model was used. The outcome of the research mentioned the significant sales promotion schemes in order to predict the purchase behavior.

Keywords: Sales promotion, logistics regression, purchase decision

Introduction

Sales promotions have been a staple of marketers' toolkits for years, helping to spark sales and draw in customers. To make sure that product is well-known in highly competitive marketplace firms launch a variety of promotional initiatives. At one side such scheme is employed to draw in new customers as well as maintain the interest of current ones on the other side it consumes a sizable portion of marketing spending. Sales promotions are appealing to results-oriented managers looking to boost sales in the near future since their influence on sales is typically quick and significant (Blattberg et al. 1995). Promotional plans come in a variety of forms, including Coupons, rebates, in-store temporary price discounts, feature advertising, and in-store displays are all examples of promotions for the consumer. Numerous studies stress the usefulness of such marketing schemes in providing clients with value (Gedenk et al., 2010; Weng & de Run, 2013)).

Despite these advantages, there is still debate over the best times, amounts, and types of sales promotions. Customers behave differently, according to previous study, based on the promotion's nature and the circumstances surrounding the sale ((Kaveh et al., 2020)). According to, (Hardesty & Bearden, 2003, Agarwal *et al.*, 2022) customers appreciate price discounts differently depending on their significance to the value of their purchases. In certain cases, using percentage-based discounts rather than absolute discounts had a greater impact (Chen et al., 2012)). Additionally, various scholars (Ogden-Barnes and Minahan, 2015; Kaveh, A et al., 2020) have noted the little impact of sales promotion programmes on purchase intention. Due to such ambiguous relationship between sales promotion and purchase intention, the current study makes an effort to determine how customers would respond to various promotional initiatives. The study's central question is whether people will accept various sales promotion schemes regardless of whether they had any intention of making a purchase.

Literature review

Sales promotion

Sales promotions are frequently seen as transient incentives that encourage trying out a good or service (Kotler 2013; Webster 1971). Kotler (2013) provided a very thorough definition of sales promotion: "Sales promotion consists of a diverse collection of incentive tools, most of which are short-term in nature and are intended to encourage consumers or the trade to make more and/or quicker purchases of specific goods or services." It has been discovered that promotional tools are successful at influencing consumer choices (Alvarez & Casielles, 2005). Advertising is found to be less successful than sales promotion for customers making ancillary purchases (Chakraborty et al, 2013). According to Nagadeepa, et al., (2015), loyalty programmes are the main driver of customer impulse purchases, followed by rebates and discounts. Offer, premium, and contest were

identified by Neha & Manoj (2013) as important factors in motivating customer purchase decisions. Shultz, et al. (1998) assert that promotional strategies also directly affect behaviour. The role of sales promotion is shown in the latter phases of purchasing, claim Kwok & Uncles (2005). Sales promotion may start the process when the customer is about to choose their options. Retail promotions, trade promotions, and consumer promotions are the three categories that make up the most extensively used typology to date (Chandon, P. 1995). In order to boost sales for the product, category, or store, merchants offer consumer incentives. Members of the channel distribution, often known as the trade, are given access to trade promotions, which are intended to encourage them to extend retail incentives to consumers or to their own clients. Manufacturers will directly approach consumers with consumer promotions, which are intended to encourage them to buy something soon after receiving the promotion. (Blattberg & Neslin 1993).

The research does not cover trade promotion, thus we are limiting our analysis to consumer and retail promotion programmes in general. The current study takes on account Promotions in the discount, membership, gift, and limited-time offer categories (Rong-Da et al., 2017).

Discount-related promotions: In these campaigns, customers are given a price discount or a quantity discount as a sales promotion technique (Inman et al., 1990; Aydinli et al., 2014).

Promotions in the membership category : with such programmes, only customers who have memberships are eligible for the special offer. In terms of quick del Sales Promotions in the membership, for instance, Amazon Prime membership offers additional benefits to its member customers. *Gift-related promotions:* In these types of promotions, a gift is a good or service that is given away for free or at a discounted rate in exchange for the purchase of one or more goods or services (d'Astous & Landreville, 2003). Non-monetary marketing may aid in boosting brand equity, according to recent studies (Palazo'n and Delgado, 2005; Montaner and Pina, 2008).

Promotions in the field of limited-time offers are focused on deals and discounts connected to advanced orders.

Purchase decision

Making a purchase selection is a difficult procedure. The consumer passes through 5 stages in the buying decision process, which are as follows. 1) Issue or call for recognition 2) Information search 3) Alternatives evaluation 4) Deciding whether to buy 5) Post-purchase evaluation comes last. Each stage of the consumer purchasing decision involves a critical role for sales marketing. (Gupta 2016). Increased consumer loyalty to the company's products or the acquisition of new customers are two outcomes that may result from sales promotion strategies.

Methodology

Sampling

The sample units were taken from the northern part of India, and data was collected through face to face interaction between the respondents and deputed research assistance. For this purpose, the five research assistant were deputed and respondents' willingness was asked to fill out the questionnaires.

Scale Development

The questions from Rong-Da Liang et al (2017) work's are used in this study. The items were used to assess the individual effects of various marketing campaigns. The dependent variable, purchase decision, was measured using a nominal scale of yes or no (Yeung and Yee 2010). The four promotion programs are the independent variables/predictors. Both the independent and dependent variables are dichotomous in each example (i.e., either 1 or 0).

Data Analysis

Each participant in the study was asked to reply to a question about their purchasing choice in light of the various sales promotion plans. To assess the likelihood that each promotional campaign will influence customers' purchase intentions, the logistic regression approach was used. Purchase intention serves as the dependent variable in this study, with discount category, membership category, gift category, and limited-time offer category of sales promotions serving as the predictors. The binary dependent variable should be estimated using the logistics analysis approach. A hypothetical model was created and defined as follows:

$$\ln \frac{p}{1-p} = a + \sum_{i=1}^n \beta_i X_i$$

Where,

p = probability of event occurrence

1-p = probability of event non occurrence

a = Intercept

β = Coefficient of predictor variable

X_i = Set of Independent variables (i=1,2,3.....n)

Statistical Results

Data consist of 61% female and 39 % male respondents, aged equal and below 30 years old (56.5%) and above 30 years old (43.5%). In addition, the average monthly incomes of the respondents were equal or below Rs. 50000 (31.3%) and above Rs. 50000 (68. 7%).The study utilizes logistics regression model which is designed to predict consumers purchase with respect to the set the predictor variable including different sales promotion schemes like Promotions in the

discount category; membership category; gift category and Promotions in the limited time offer category, Age, Gender, Income and Family members count. The classification accuracy of model 0 was 52.2%, and model 1 was 82.6% which indicate the significance of inclusion of predictor variable in the final model. In addition the Omnibus test also show the significant improvement in model prediction ($p < 0.05$, Chi Sq-133.889) once the predictor in includes in the study. As per the Hosmer Lemeshow Test (Chi-Sq- 5.882, $p .66 > 0.05$) the model indicates the fitness. As per Wald statistics (see table I) only three variables DIS, GIFT, and Income were found significant. Hence after removing rest of other variables the logistics regression model was again tested.

Table I: Variables in the Equation (All predictor variables included)

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1 ^a	DIS	2.696	.423	40.579	1	.000	14.825	6.467	33.984
	MEM	-.370	.379	.951	1	.330	.691	.328	1.453
	GIFT	.929	.392	5.623	1	.018	2.533	1.175	5.459
	TIME	-.397	.383	1.075	1	.300	.672	.318	1.424
	Age	.458	.390	1.381	1	.240	1.581	.736	3.395
	Gender	-.333	.387	.743	1	.389	.717	.336	1.529
	Income	-3.089	.521	35.093	1	.000	.046	.016	.127
	members	-.120	.064	3.517	1	.061	.887	.782	1.005
	Constant	1.873	.761	6.059	1	.014	6.506		

a. Variable(s) entered on step 1: DIS, MEM, GIFT, TIME, Age, Gender, Income, members.

The classification accuracy in model 1 was 81.3% higher than the model 0 accuracy of 52.2%, and the Omnibus test also show the significant improvement in model prediction ($P < 0.05$, Chi Sq-124.96), the Hosmer Lemeshow Test (Chi-Sq- 1.572, $p 0.995 > 0.05$) shows much better model fitness for the revised model, where all the three predictors were found statistically significant (table II).

Table II

Variables in the equation (Revised with DIS, GIFT and Income predictor only)

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	DIS	2.580	.394	42.830	1	.000	13.200	6.095	28.588
	Income	-2.865	.486	34.744	1	.000	.057	.022	.148
	GIFT	.917	.379	5.839	1	.016	2.501	1.189	5.262
	Constant	.741	.473	2.452	1	.117	2.097		

a. Variable(s) entered on step 1: DIS, Income, GIFT.

The classification accuracy of revised logistics regression model as shown in Table III, indicates a 81.3% of correct classification.

Table III: The revised model's classification table

	Observed	Predicted		
		Have you ever been purchase any product because of promotional coupons/schemes/pamphlets		Percentage Correct
		no	yes	
Step 1	Have you ever been purchase any product because of promotional coupons/schemes/pamphlets no	87	23	79.1
	yes	20	100	83.3
	Overall Percentage			81.3

a. The cut value is .500

The sensitivity of the model (100/120) 83.3% and specificity is (87/100), 87.00%. So, in this study, the model will correctly identify 83.3 % of the people who have purchase the product and will correctly identify 87% who have not purchase the product.

For the purpose of addressing the research question, Wald statistics was used (table II). It establishes the significant relationship between set predictor variables like DIS, GIFT and Income and purchase decision. The Exp(B) *ODD* for these variables were 13.200, .057, and 2.501 respectively. The model shows that Discount category of sales promotion scheme has the

highest positive impact on purchase decision due to sales promotion followed by GIFT scheme.

Whereas the income variable is having negative impact of purchase decision. Table also signifies that the ODDS of a consumer purchase decision will be increased by 13.2 times [odds ratio = $\text{Exp}(2.58) = 13.2$] by implementing a discount category sales promotion. Similarly, the ODDS of purchase decision will be increased by 2.5 times by implementing a gift category sales promotion. On the other hand, the income will decrease the odds of consumer purchase decision by 0.057 times.

Discussion

The prime objective of the study was to assess the impact of sales promotion schemes on purchase decision. In addition, the study also includes some demographic variable like gender, age, no of family member and Income of the respondents. The final logistics regression model was left only with three predictors Discount category sales promotion, gift category sales promotion and Income of the respondents. Probabaly due to discount in price of the products the consumer find themselves in a much comfortable state which motivate them to buy at reduced price level. The price deduction also increases their purchase capacity and the saved amount they can utilize for other expenses. Hence the discount category of sales promotion was positively related to the purchase decision. In the gift giving culture the Givers tend to buy gifts that are desirable, while recipients prefer gifts that are useful (Baskin et al., 2014) and when user get its usable product and or other desirable thing free of cost from the seller, it empathize them. Such empathetic approach leads them to buy. A seller who have not offered gift throughout the year but when it happen then people get motivated (Belk and Coon, 1993; Larsen and Watson, 2001). Research shows that gifting leads the empathy which in turns result as buying decision (Hwang & Chu, 2019). Hence in the study the gift category of sales promotion positively related to the purchase decision. Although income

was significant predictor in the model with negative relationship with the purchase decision. But if the person is looking for discount and gift schemes to make its decision to purchase or not to purchase, then its decision making revolves around the attractiveness of sales promotion schemes, because such schemes increase the disposable income of such customers who belong to the relatively low income. In other word the person with lower income tends to become the buyer as compared to the high-income customers. As the result in the study income was having a negative relationship with the purchase decision.

The reason for the rejection of impact of membership schemes and limited time offer categories of sales promotion could be attributed to its obligation and obligation. To avail the benefits of sales promotion schemes the membership clause seeks an initial investment to become member from the customers hence it seems less attractive because it lacks from the feelings of free. In addition, Limited time offer for discounts is again require a preordering which is not usual for many customers hence these two sales promotion schemes were found insignificant in the study.

Conclusion

The role of sales promotion schemes have been studied by many researchers. Numerous studies highlight the beneficial role that sales promotion plays in providing customers with value (Kaveh et al., 2020; Chang, 2017). But the way customers respond differently against the categories of the promotion schemes (Kaveh et al., 2020). As the outcome of the study found insignificant effect of membership scheme and pre order schemes, and the most significant promotion schemes includes price discount and gift schemes. Hence the marketers need put more emphasis on these two schemes while designing their sales promotion campaign.

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