Directing store flyers to the appropriate audience

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Abstract

Grocery shoppers were questioned about the frequency of purchasing items that were featured in the store’s flyers. This measure was used as the dependent variable in a multinomial logit model with the independent variables being various aspects of shopping behaviour, usage of store flyers, age and employment status. Since only one threshold parameter was significant, the four-level dependent variable was then collapsed and a binary model was estimated. This study evidenced that less than half of the respondents looked forward to receiving unsolicited flyers. Most shoppers read the flyers only to be informed of price specials that the store has to offer. The odds ratio of responding to store flyer deals among those who look forward to sales flyers is more than double the odds ratio of those who do not await the flyers, across every category of shopping frequency. Retailers could employ direct marketing to target specific audiences who look forward to receiving store flyers.

Keywords: Store flyers; deal-prone

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1. Introduction

There is no gainsaying that retailers need to constantly encourage customers to patronise their store, particularly in environments where competition is intense. Advertisements announcing store promotional offers of various sorts dot the media and store flyers make up a significant part of this advertising avalanche. In the developed world retailers regularly spend anywhere between one third to one half of their marketing budgets on promotions advertised on store flyers (Bodapati, 1999; Volle, 1997; Arnold et al., 2001). According to these authors, the huge spends are justified by the strategic role attributed to store flyer featured promotions.

Stores typically use store flyers to promote new products, announce new stores and communicate price specials. According to Shimp (1997), in the context of a Hi-Lo pricing strategy practised by most supermarkets, there is an endemic belief that store flyers are a means of appealing to the deal-prone, store-switching segment, and of generating traffic and sales among these consumers. Burton et al. (1999) compare two sets of consumers, one exposed and the other not exposed to flyers, found a significant and positive relationship between exposure to flyers on the one hand, and the number of advertised products bought, the amount spent on these products, and the total number of products purchased, on the other hand. They point out that exposure to flyers was associated with an increase of more than 100% in the number of advertised products bought and the dollar amount spent. It was also identified that only about a third of shoppers examined the flyers before shopping and that almost half of households that received store flyers disregarded them. Moreover, according to Burton et al. (1999) more price conscious shoppers seemed to be more interested in store flyer information. Price deals featured on store flyers are in the main meant to attract deal-prone customers (customers who actively seek price specials). The theoretical mechanism underlying deal proneness is viewed as not the low deal price per se but the transaction utility that is created when a consumer pays a price below his or her internal reference price (i.e. a mentally stored price against which other prices are judged) (Rosch 1975; Thaler 1985). Research on the attention paid and response made to store flyers, point to the importance of deal proneness of the consumer to the success of a particular store flyer program. According to Miranda (2001), deal-prone customers have their reference prices and reservation prices lower than non deal-prone customers. Retailers, who therefore use the medium of store flyers to promote their products, justifiably use price specials as their basic promotional appeal. Also,
Krugman (1965) noted that classically conditioned deal sensitive customers do not use quality of the product as a reference term while being conditioned to believe that discounted products are good value.

There is also indication in the literature that the response to store flyer promotion programs may be moderated by the customer’s store loyalty to their usual store, especially as the buyer does not have to confront the risk of shopping or paying higher prices in unknown stores (Yankelovich et al., 1981; Dhar et al., 1997). Especially for product categories that have a higher inventory holding costs, there is evidence that retailers use temporary price cuts in their (flyer) featured promotion programs to effectively charge lower than average price to encourage frequent purchasers / heavy users to buy larger quantities of the item in a single purchase (Blattberg et al. 1978; Jeuland and Narasimhan, 1985). Gabor and Granger (1964) observed that frequent shopping gives the shopper the advantage of more price information arising from the ability to do comparative shopping. Kalyanaram and Little (1994) established that frequency of purchase has a significant impact on the formation of the consumer’s reference price. By virtue of the frequent ‘opportunity to see’, these shoppers have greater exposure to a price offers and therefore seek price concessions because they have lower reference prices.

Age is another influential factor in perceiving the extent of importance of price in purchase decisions as per McGoldrick and Marks (1987), with older shoppers considering price concessions as a very important attribute. Gijsbrechts et al. (2003) expect the impact of store flyers to be more profound among older consumers, lower income families, smaller families (with no small children) and households with less than full employment rates (one-worker or no-worker households). They believe that these households have lower search and transaction costs, and experience higher transaction values.

Shopping patterns, such as time spent in the store (Flavián et al., 2001) and volume of purchase (Mägi 2003), also appear to be an influence on how consumers respond to the store flyer featured promotions. These studies were able to demonstrate that shoppers who are prone to linger longer in the retail stores are having a happy shopping experience which include taking advantage of the special promotions put out by the store (many of which are featured in the store flyers).

3. Research problem

Studies by Shimp (1997) and Burton et al. (1999) have categorically pointed out that sales flyers seek to direct shoppers’ choices to specific products and stores. Literature while making it clear that sales flyers generate significant additional store sales, concedes that considerable number of the recipients does not read the unsolicited flyers. Often stores distribute their store flyers indiscriminately without knowing who are likely to respond to what appeal. An appreciation of what predicates the susceptibility of particular consumers to store-flyer featured promotions, would enable retailers to focus on the appropriate segment and be more specific in their promotional appeals in order to achieve greater success from their store flyer programs. Also this understanding would help in reducing the waste in the quantity of flyers produced and distributed.

According to Butz (2004), expectations predispose the mind and body that in turn influence behaviour. Butz’s study of learning and cognition include investigation of the type of anticipatory mechanisms and stimulus drivers that together help to condition behaviour and learning outcomes. In this research, we will similarly examine if the mechanisms identified in this literature review as well
as the following mechanisms underpinning the use of flyers and stimuli jointly influence the frequency of shoppers’ purchase of grocery products *in response to* store flyers dropped in their mailboxes:

1. Anticipatory mechanisms like, the prospect of receiving store flyers, duration of time that the store flyers are held, store flyers being a memory aid on the shopping trip, the amount of detail given on the flyers, committing to memory the price specials announced in media, manner of flyer disposal and querying the excessive costs of flyer activity.

2. Stimulus drivers, in the form of flyer appeals like price concessions, product availability, new product introductions, and new store openings.

The above variables (with the exception of price concessions) are not specifically referred to in extant marketing studies on sales flyers. These variables are however included in this research investigation as they are considered to have a mediating influence on the frequency of shoppers’ response to store flyers.

4. Research method

The research methodology included the personal administration of a structured questionnaire among 470 randomly selected adult grocery shoppers across Melbourne, exiting two of Australia’s biggest supermarkets, namely, Coles and Safeway. Both of these have stores in most of the city’s shopping centres and regularly distribute store flyers that announce short term price specials (discounts vary between 5% to 15%) on both food and non-food items. The survey was meant to investigate the shopper’s usage of and response behaviour to the unsolicited store flyers received from the supermarket in their mailboxes. As part of the survey’s introduction, examples of store flyers were first shown to the respondents to ensure that there was consistency of understanding the term “store flyer”. The survey was conducted at varying times on different days of the week over a two-week period in the second quarter of 2004. Sample bias of investigating disproportionate number of respondents of any particular profile was therefore largely reduced (no incentive was offered for participating in the survey, but the respondents were made aware that the investigation was part of academic scholarship).

The respondents were specifically asked about the frequency with which they purchased items that were featured in the store’s flyers. Originally, we modelled this measure by an Ordered Multinomial Logit model with various aspects of shopping behaviour, use of store flyer, age and employment status being used as independent variables. However, out of the three threshold parameters that identified the four levels of the dependent variable, only one had a significant point estimate and their 95 per cent confidence intervals overlapped each other. We therefore reduced the number of ordered indicator values for the dependent variable from four to two and respecified the model as a standard Binomial Logit model. The new dependent variable, DFREQSHFL, is a dummy variable defined by the following

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1. Given the size of these retailers, manufacturers are probably queuing for space within their promotional programs.

2. The question asked was as follows: “How often do you purchase items from this store in response to store flyers dropped into your mailbox (never / sometimes / often / very often)?”

3. About dependent variable models see e.g. Franses and Paap (2001).
question: Do you ever purchase items from this (designated) store in response to store flyers dropped into the shopper’s mailbox? (0: never / 1: ever).

Binomial regression models in general relate a continuous but unobservable, also called latent, dependent variable $Y^*$ to a set of explanatory variables, $X_1, X_2, \ldots, X_K$. In symbols

$$y_i^* = \beta_0 + \beta_1 x_{i1} + \ldots + \beta_k x_{ik} + \epsilon_i$$

where $X_i$ is an $n \times K$ matrix of $n$ observations on each of the $K$ explanatory variables, $\beta$ is a $(K+1) \times 1$ vector of the coefficients, and $\epsilon_i$ is a stochastic error term. In the present context, the latent variable can be thought of as some unobserved measure of the importance of store flyers ascribed by the respondent. It is mapped onto an observable dummy variable $Y$, like e.g. DFREQSHFL, by the following rule:

$$y_i = \begin{cases} 
1 & \text{if } y_i^* > 0 \\
0 & \text{if } y_i^* \leq 0 
\end{cases}$$

The combination of equations (1) and (2) yields the following binomial regression model:

$$P(y_i = 1 | X_i) = P(y_i^* > 0 | X_i) = P(X_i \beta + \epsilon_i > 0 | X_i) = F(X_i \beta)$$

$$P(y_i = 0 | X_i) = P(y_i^* \leq 0 | X_i) = 1 - F(X_i \beta)$$

where $F$ denotes the cumulative probability distribution function of $\epsilon_i$. As regards this error term, it is usually assumed to be a standard normal or logistic random variable. In the latter case, $F$ is the cumulative standard logistic distribution function.

$$F(X_i \beta) = \frac{e^{X_i \beta}}{1 + e^{X_i \beta}}$$

and the resultant model is called a Binominal Logit model. It is a non-linear regression model whose unknown parameters can be estimated by the Maximum Likelihood method.\(^4\)

5. Data analysis

Initially, we intended to relate the dependent variable, DFREQSHFL, to the following nineteen dummy and ranked explanatory variables.

SINCE: How long have you been shopping at this store? (less than 6 months / between 6-12 months / more than a year);

FREQSHOP: How often do you shop at this store? (monthly / fortnightly / weekly / more often);

LOOKFORW: Do you look forward to receiving store flyers in the mail? (yes / no);

RETAIN: For how long do you or other household members retain store flyers? (for less than one day / for one day / for 2-6 days / for more than 7 days);

CARRY: Do you carry the store flyers with you for reference when you go to the store? (yes / no);

COMPRICE: How important is it for you to read store flyers to compare prices with other stores? (1: most important, ..., 4: least important);

PRICESPE: How important is it for you to stay informed of price specials? (1: most important, ..., 4: least important);

NEWPROD: How important is it for you to read store flyers to stay informed of new products? (1: most important, ..., 4: least important);

PRODAVA: How important is it for you to read store flyers to stay informed of

\(^4\) We used the Ordered Dependent Variable Models option of EViews 5.
Eight variables, viz. comparing store prices (COMPRICE), deal proneness i.e. desire to be informed/respond to price specials (PRICESPE), period of time store has been patronised (SINCE), frequency of shopping (FREQSHOP), size of the shopping bill (AVBILL), time spent in the store (AVTIME), the influence of age (AGE), and influence of being employed (EMPL), have been well documented in the literature.

The other eleven explanatory variables have not yet been addressed in retail literature but are considered to be mediating influences on the dependent variable. It is intended to investigate whether shoppers’ organization of anticipatory mechanisms and stimuli in any way individually or jointly affect the dependent variable.

As mentioned earlier, our original sample size was 470 shoppers. However, 148 or 31.5% of respondents conceded not reading flyers and trashing them on receipt. These respondents naturally did not answer key questions relating to the stimulus drivers (flyer appeals) and some of the anticipatory mechanisms. As a consequence of their answers not being germane to the specific objectives of the research, these respondents were excluded from the data analysis. Based on the remaining 322 respondents, the key descriptive results that emerged from our initial data analysis are as follows:

From the remaining 322 respondents
a. Around 53% conceded that they do not look forward to receiving unsolicited store flyers in their mail;

b. Almost 70% do not take the store flyers with them for reference when they go shopping;

c. Also 70% of the respondents feel that the information provided on the store flyers regarding the store’s promotion items is adequate enough without being too much.

d. About 47% of the respondents look forward to receiving flyers in the mail. 48.7% of these shoppers believe that stores could reduce their prices with lower flyer activity. The corresponding proportion among the respondents who do not want to get flyers is 52.9%. However, the difference between these two sample proportions is statistically insignificant.

e. Close to 55% of the respondents retain the flyers for at least two days 41.8% of these shoppers think that stores could reduce prices with lesser flyer activity, while among those respondents who kept the flyers for only a day or less, 62.1% share this opinion. The difference between

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5 All dummy independent variables are coded as 0: yes, 1: no.
these two sample proportions is strongly significant.

f. Only about 52% of the respondents dispose their flyers exclusively in recycling bins, while 32% of them threw the flyers in a (general) rubbish bin. There is no distinct pattern between the length of time of flyer retention and the way of flyer disposal. However, a significantly larger proportion of the respondents who believe that stores could reduce their prices with lower flyer activity dispose their flyers in the rubbish bin (39.6%), than of those who think otherwise (24.0%).

g. A large number of respondents who looked forward to receiving store flyers (69.3%) were comfortable with the amount of information provided in the flyers.

h. Almost 75% of the respondents visit the store at least once a week.

6. Estimation results

In the original, unrestricted model, eleven of the 19 explanatory variables (SINCE, RETAIN, NEWPROD, PRODAVA, LESSFLYE, RUBBIN, RADIOTV, AVTIME, AVBILL, AGE andEMPL) proved to be insignificant, even at the 10 per cent significance level, both individually and jointly.\textsuperscript{6}

In the subsequent regression we eliminated nine of the insignificant regressors, but retained NEWPROD, PRODAVA and NEWSTORE in the regression for two reasons. Firstly, two of them (NEWPROD and PRODAVA) form part of the set of variables (stimulus drivers) that is the focus of our study. Secondly, in the final regression these three variables as a group are jointly significant even at the half percent level.\textsuperscript{7} The estimation results for the restricted model with ten explanatory variables are reported in Table 1.

\textit{INSERT TABLE 1 HERE}

McFadden $R^2$ of the estimated Binary Logit model is about 0.275, high enough to consider this specification acceptable. The LR test statistic for the joint significance of all explanatory variables is strongly significant. Moreover compared to the original ‘unrestricted’ specification, all the three model specification criteria support this restricted model.\textsuperscript{8}

Due to non-linearity, the coefficients of a Binary Logit model cannot be interpreted as the marginal effects of the explanatory variables on the dependent variable. Yet, their signs determine the directions of these effects: a positive coefficient means that the probability of ‘success’ (i.e. $Y = 1$) is an increasing function of the corresponding explanatory variable, while a negative coefficient suggests just the opposite. Therefore, the individually significant slope coefficients imply that the estimated probability of purchasing items from this (designated) store in response to store flyers dropped into the shopper’s mailbox increases by more frequent shopping at this store (FREQSHOP), by the importance assigned to reading store flyers to compare prices with other stores (COMPRICE) and to stay informed of price specials (PRICESPE), and for shoppers who look forward to receiving store flyers (LOOKFORW), carry store flyers with themselves to the store for reference (CARRY) and dispose store flyers in paper recycling bin (RECBIN); but it is smaller for shoppers who think

\textsuperscript{6} The results of this first regression and of the subsequent Wald tests are not reported in this paper, but they can be obtained from the authors on request.

\textsuperscript{7} The test statistic and $p$-value of this $F$-test are 5.198 and 0.002, respectively.

\textsuperscript{8} In the unrestricted model Akaike, Schwarz and Hannan-Quinn information criteria are 0.697, 0.931 and 0.790 respectively.
that store flyers have too much information (TOOMUCH). In our opinion, these implications are reasonable.

It is also customary to interpret ordered regression models by considering odds ratios of relevant combination of independent variable values. For the Binary Logit model the odds ratio is given by

\[ \frac{P(y_i = 1|X_i)}{P(y_i = 0|X_i)} = \frac{F(\beta_0 + X_i \beta)}{1 - F(\beta_0 + X_i \beta)} = e^{\beta_0 + X_i \beta} \]  

(5)

Table 2 shows the odds ratios of purchasing items from this store in response to store flyers dropped into the buyer’s mailbox (DFREQSHFL), comparing looking forward to receiving store flyers in the mail (LOOKFORW) first to the frequency of shopping at this store (FREQSHOP) and then to the importance assigned to read store flyers in order to stay informed of price specials (PRICESPE). In each case, all other variables are fixed at their sample medians.

7. Discussions

This research study identified that less than half of the respondents looked forward to receiving unsolicited flyers. The study also showed evidence that those shoppers who look forward to receiving store flyers, are the ones most likely to respond to the promotional appeals. The odds ratio of those who look forward to receiving unsolicited store flyers (for purchasing items in response to the store’s promotion) are at least twice the odds ratio of the consumers who do not look forward to receiving store flyers. Since the desire to be informed of price specials appears to be the most significant reason for reading store flyers, it would be reasonable to consider flyer-seeking shoppers as deal prone. In fact, across every category of shopping frequency, the odds ratio of responding to store flyer deals among those who look forward to store flyers is more than double the odds ratio of those who do not await the flyers.

In the Binomial Logit model, looking forward to receipt of store flyers (LOOKFORW) was identified as a significant variable in influencing the dependent variable DFREQSHFL. It is this “anticipation” manner that creates the required predisposition among shoppers to receive and process the stimuli to respond. In this model LOOKFORW and the other anticipatory mechanisms, namely, FREQSHOP, CARRY, TOOMUCH and RECBIN underpinning flyer usage together with the stimulus drivers, COMPRICE and PRICESPEC appear to motivate store flyer recipients’ response to the flyer-featured promotions. The joint appearance of anticipatory mechanisms and stimulus drivers as significant variables that condition response behaviour to store flyers vindicates the principles enunciated in the study of Butz (2004) on cognitive learning. Also, the emergence of COMPRICE and PRICESPEC as significant predictor variables support Burton et al. (1999) observations that price deals featured on store flyers are in the main meant to attract deal prone customers.

The fact that TOOMUCH has a significantly positive coefficient suggests that flyer recipients, many of whom respond to flyer-featured promotion, do not consider promotion related information details on flyers to be excessive. The corollary of this finding suggest that these details may assist shoppers in reasoning their discount purchase behaviour, which

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9 The sample medians are as follows: FREQSHOP = 3, CARRY = 2, COMPRICE = 2, PRICESPE =1, NEWPROD = 3, PRODAVA = 3, NEWSTORE = 4, TOOMUCH = 2, RECBIN = 1.
appears to be at variance with Krugman’s (1965) claim that not everybody who takes advantage of a price special has gone through a cognitive decision-making protocol.

Since CARRY was identified as a significant predictor variable, it is reasonable to believe that those respondents who carried the store flyers with them on their shopping trips used them as reminders or for referral when taking up the offer. This is in accordance with Bowlbey (1997) study, which claims that shoppers find it easier to purchase if they can rely on their “prompt lists” in the store.

Those shoppers who respond to store flyer promotions were more likely to dispose the flyers in recycling bins (RECBIN), rather than in (general) rubbish bins. This mediating behaviour of handling store flyers may be the reflection of shoppers’ acknowledgement of their perceived utility of the flyers.

8. Limitations of paper

The group that trashed their flyers without reading them had to be excluded from the data analysis because their answers to various key questions relating to the stimulus drivers (flyer appeals) and some of the anticipatory mechanisms were not relevant to the research objectives, thus reducing the sample size considerably. Even so it would have been instructive to find out whether this cohort had some common features as those who read flyers, but this sub-sample was not large enough for any meaningful analysis. Further the net sample size was too small to allow us to make any adjustments to account for the differences in store flyer effects between the two stores from which shoppers were surveyed.

9. Implications and future research

A large proportion of retail and manufacturer promotions are communicated to customers through store flyers. Yet, little research has been done on consumer reactions to these promotion announcements, in contrast to, for instance, consumers’ overall deal-proneness. Clearly, more research is needed on this issue that can provide guidelines to support important store flyer decisions, such as composition and distribution.

If retailers were able to reduce the wasteful distribution of their flyers to audiences that are not interested in reading them, they could consider using this savings to recruit more minor brands by subsidising the manufacturer’s dollar contribution to participate in the store’s flyer activity. The store’s flyer program itself would be augmented by the inclusion of more products on promotional offers, thus inducing greater purchases from deal prone flyer seeking customers. Retail stores will be well served by building in their flyer featured promotions some incentive for the consumer to retain the flyer till the time of purchase and perhaps even use the flyer as a redemption instrument to avail of the special price.

Retail stores keen on targeting those shoppers who look forward to receiving the store flyers could communicate with them through mail outs including e-mail. One does not often find a store today that does not participate in or have a loyalty program. Over time these stores could put together mailing lists that would allow them to specifically target shopping audiences of particular shopping profiles, particularly among the frequent shoppers. It might be more cost effective and efficient for stores to communicate with their potential customers on a one-to-one basis, instead of taking a spray approach to an audience where the vast majority does not read unsolicited sales flyers. Through this direct communication with their audience, stores could be more forthcoming in making claims about the benefits of their promotion than they
would be in mass distributed flyers. Also, the results of this predictive model need not be confined to members of loyalty programs only. Less precise, but still useful economies could be gained by using the insights from the analyses for direct marketing of flyers to the general population as well as geo-demographic targeting of flyers.

Further, given that a large number of flyer recipients do not properly dispose the flyers, there should be a further impetus to retailers with ecological concerns to direct their featured promotions only to those who are looking forward to the store flyers. In the wake of floods and landslide disasters making regular headline news, retailers who demonstrate disapproval to deforestation through moderation of their flyer activity are bound to be commended for their efforts, not the least by a growing number of appreciative patrons.

Considering that there are a significant number of shoppers who do not read flyers and trash them on receipt and also those who do not look forward to receiving flyers, there is research opportunity that could address what messages to include in the flyers that are compatible with their attitude and promote a behavioural change among them. It would be cogent in this regard to consider the demographic profile of those who look forward to store flyers and their response to different promotional appeals versus the demographic (and perhaps lifestyle) patterns of those who do not look forward to unsolicited flyers.

Private labels as a category posted the highest growth rates in the past few years, especially in Europe and North America (Foodweek, February 2000). It would therefore be useful to investigate the response to store label-featured promotions on flyers. Gutwilling (2000) points out, that an excellent private label program provides many important but frequently uncounted returns on investment advantages. Perhaps the greatest strategic benefits of a store brand program are its ability to attract loyal shoppers and to create a point of competitive difference from retailers who mainly sell Known Value Items (KVI). Store flyers emphasising private labels appeals could possibly build sales volumes from the more price conscious without a disproportionate risk of customer attrition.

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