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Publisher: Routledge

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Journal of Marketing Communications

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rjmc20>

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Version of record first published: 24 May 2011

To cite this article: Charles S. Areni & Rohan Miller (2011): Sales effects of in-store radio advertising, *Journal of Marketing Communications*, DOI:10.1080/13527266.2010.528208

To link to this article: <http://dx.doi.org/10.1080/13527266.2010.528208>



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Sales effects of in-store radio advertising

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A field experiment involving 95 variety discount chain stores was conducted in which in-store radio ads were run in different formats and schedules, across different blocks of stores, over a 4-week period. The test products were advertised on in-store radio either (a) at their regular price, (b) at a discounted price or (c) at a discounted price that was also advertised in mail circulars. The resulting weekly sales data indicated that in-store radio advertising had little or no effect on sales of regularly priced products and discounted products also featured in the mail circulars, and increased sales of only one discounted product not featured in mail circulars. By contrast, the mail circular advertising resulted in consistent increases in sales of the test products.

Keywords: in-store radio; radio advertising; price discounts; circular advertising; shopping behaviour

Introduction

Previous research has shown that promoting discounts via direct mail (Bemmar and Mouchoux 1991), newspaper (Wilkinson, Paksoy and Mason 1981; Wilkinson, Mason, and Paksoy 1982), television (Lodish, Abraham, Kalmenson, et al. 1995; Lodish, Abraham, Livelsberger, et al. 1995), outdoor advertising (Bhargava and Donthu 1999) and in-store communications (Dhar and Hoch 1996; Dukes and Liu 2010) increases their effect on sales compared to when discounts are communicated solely via shelf or on-package price labels. Yet, despite the plethora of studies on retail promotion media, academic researchers have not examined the effects of in-store radio on sales, even though it has increasingly been used in several retail categories (Anonymous 1993). This omission in the literature may be due to the difficulty of producing professional quality advertisements, and the challenge of coordinating ad schedules for several stores during the test period. However, the development of cable-, satellite- and, more recently, internet-based technology has allowed retailers to develop their own radio stations, complete with music, news, live broadcasts and any other programming found in free-to-air radio stations. This allows retailers to not only control the audio environment of their stores, but also to generate additional revenue by selling airtime to suppliers who wish to promote products at the point of sale. The satellite and internet technologies allow for the additional advantage of running different ads in different stores at the same time, which allows for greater flexibility in response to situational (i.e. weather and local events) and regional (i.e. climate and subculture) influences on product demand.

In addition to the failure to consider in-store radio as an important medium, previous research on retail promotions is limited by an almost exclusive focus on the supermarket category (Mulhern and Padgett 1995), with little or no research on variety discount chains,

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the biggest retail growth category over the last 20 years (Anonymous 2000). The research reported here overcomes both limitations using satellite technology to deliver multiple advertising schedules to different stores in a variety discount chain. The 95 stores in the chain were grouped with respect to size, layout, state and metro vs. suburb location in order to create test vs. control groups for each week of the market test. Moreover, the radio spots were actual advertisements intended to be used by the various advertisers for free-to-air radio campaigns. The central question examined in this research is whether in-store radio advertising increases sales of (a) regularly priced items, (b) discounted items and (c) discounted items featured in mail circulars.

Incremental sales effects of in-store radio advertising

For the purposes of understanding the incremental sales effects of in-store radio advertising on regularly priced items, discounted items and featured items, consumers in the retail trade area can be classified as (a) planning to purchase a promoted item from the retailer during the promotion period, (b) planning to visit the retailer but not planning to purchase a promoted item, (c) not planning to visit the retailer but planning to buy a promoted item and (d) not planning to visit the retailer or to buy a promoted item in the promotion period. Since shoppers from category (a) already intend to buy the promoted item from the retailer, little or no advertising is needed to ensure the sale, so the major impact of in-store radio ads is likely to be on consumers in categories (b)–(d). Using the framework and terminology of Lam et al. (2001), it is necessary to attract consumers from category (c) to one of the retailer's stores, to convert consumers from category (b) into buyers of a promoted item, and to attract and convert consumers from category (d). In-store radio advertising and non-featured price discounts cannot, by definition, attract consumers in categories (c) and (d), so only mail circular features can increase the number of shoppers during the promotion period. The most difficult task for in-store radio advertising would appear to be lifting sales of regularly priced items. In the absence of an economic incentive, capturing attention alone may not be enough to induce unplanned purchases (Gupta 1988), though it is possible that the radio ads may lead shoppers to assume that they are receiving a discount without actually checking the price (Inman, McAlister, and Hoyer 1990). Instead, in-store radio seems more suited for communicating price discounts that might otherwise be missed by consumers (Dickson and Sawyer 1990); hence, the conversion potential of in-store radio for discounted items is high.

- H₁: In-store radio advertising has little or no influence on sales of regularly priced products.
- H₂: In-store radio advertising increases the sales of discounted products not featured in mail circulars.

Featuring discounted items in mail circulars would be ideally suited for attracting shoppers by changing their choice of store (i.e. category (b)), by enticing them to buy a featured product (i.e. category (c)), or both (i.e. category (d)) (Bawa and Shoemaker 1987; Bemmaor and Mouchoux 1991). Predicting the relative size of in-store radio ads on the sales of discounted products featured vs. not featured in circulars is difficult because, although the circulars should increase the pool of customers intending to purchase a promoted product, an incremental sales effect of in-store radio would only be observed to the extent that some of these shoppers forget about their initial intent and are reminded by the radio ads (Bemmaor and Mouchoux 1991; Dukes and Liu 2010). Since the percentage

Table 1. Schedule of price discounts, direct mail circulars and in-store radio advertising by week and store group.

	Disposable razors (women's 10 pack)		Shaving cream (women)		Soft drink (1.25l bottles)		Liquid detergent		Underwear (men's T-shirts and hipsters)	
	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
Week 1 (11–17 Jan)	Regular No radio No mail	Regular No radio No mail	Discounted Radio No mail	Discounted No radio No mail	Regular Radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail
Week 2 (18–24 Jan)	Regular No radio No mail	Regular No radio No mail	Discounted No radio No mail	Discounted Radio No mail	Regular No radio No mail	Regular Radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail
Week 3 (25–31 Jan)	Regular No radio No mail	Regular No radio No mail	Discounted Radio No mail	Discounted Radio No mail	Regular Radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Regular Radio No mail
Week 4 (1–7 Feb)	Discounted No radio Mail	Discounted Radio Mail	Regular No radio No mail	Regular No radio No mail	Discounted Radio Mail	Discounted No radio Mail	Discounted No radio Mail	Discounted Radio Mail	Discounted Radio No mail	Discounted No radio No mail
	Chlorine pool treatment		Disposable cameras (2 pack)		Sandwich toaster		Powdered detergent		Kitchen wipes	
	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
Week 1 (11–17 Jan)	Regular No radio No mail	Regular No radio No mail	Regular Radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Discounted Radio No mail	Discounted No radio No mail
Week 2 (18–24 Jan)	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Regular Radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Discounted No radio No mail	Discounted Radio No mail
Week 3 (25–31 Jan)	Regular No radio No mail	Regular No radio No mail	Regular Radio No mail	Regular Radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Regular No radio No mail	Discounted Radio No mail	Discounted Radio No mail
Week 4 (1–7 Feb)	Discounted No radio No mail	Discounted Radio No mail	Discounted Radio No mail	Discounted No radio No mail	Discounted No radio Mail	Discounted Radio Mail	Discounted No radio Mail	Discounted Radio Mail	Regular No radio No mail	Regular No radio No mail

of shoppers who forget is not known, a more general hypothesis is advanced instead, but the potential moderating the effect of the circular features is examined below.

H₃: In-store radio advertising increases the sales of discounted products featured in mail circulars.

Method

In order to test Hypotheses 1–3, weekly unit sales data were collected from 95 stores of a major variety discount chain in Australia for a 4-week period. The 95 test stores were divided into two groups intended to be similar in terms of size, layout, state and metro vs. suburb location. Table 1 shows the complete schedule of advertising and price discounts for the 10 test products, all of which were determined by the management as part of their normal promotional efforts. It should be noted that the experimental design was not optimal for isolating the effects of each promotional variable. The mail circulars featured only discounted products, because the management believed that price incentives were necessary to attract consumers, and given the cost of the circulars, they were reluctant to feature regularly priced items. In addition, mail circulars could only be used once a month due to long lead times, so not all of the promoted products could be featured during the test period. Finally, the ad schedule often limited the ability to test for sales effects of in-store radio, because management wanted to avoid annoying customers by saturating the audio environment with advertising.

Independent variables

In-store radio advertising

Each professionally produced ad was 30 seconds in length, and was run 3 times per hour in regular increments of 20 minutes during the normal opening hours of 6 a.m.–12 a.m. All ad scripts contained a brief description of the featured product. For discounted products, they also noted the discounted price, the dollar savings and the regular price. The addenda to the scripts for the discounted products added roughly 4 seconds to the ads. In essence, the ads were similar in production quality and format to the ads was regularly used by the retailer.

Price discount

The amount of the price discount varied by product: underwear (A\$14.94–A\$12.93), disposable razor (A\$10.48–A\$8.48), shaving cream (A\$6.16–A\$4.98), liquid and powdered detergent (A\$15.73–A\$14.73), sandwich toaster (A\$78.78–A\$58.78), chlorine pool treatment (A\$52.84–A\$49.84), disposable camera (A\$34.94–A\$29.94), soft drink (A\$1.38–A\$0.98) and kitchen wipes (A\$4.88–A\$4.68), according to the discounting policy of the retailer.

Mail circular

The mail circular was professionally designed using colour photos of the featured products on a glossy paper. It was delivered on February 1st to correspond to the beginning of Week 4. The target audience for this promotion was households comprising the trade area of each store, based on the prior research on store patronage patterns. Products were

always featured at the discounted prices listed above for a 1-week period. The actual circular featured multiple products on 10 pages of tabloid-sized paper, similar in appearance to newspaper inserts distributed in weekend additions.

Dependent variable

The dependent variable was weekly unit sales by store. Hence, there were four observations for each store group for each product.

Results

Hypotheses 1–3 were tested via a three-way mixed factor ANOVA with product and week as repeated factors, store group as a between-groups factor and weekly unit sales as the dependent variable. Results indicated a main effect of product ($F_{9,828} = 83.0$, $p < 0.0001$), a main effect of week ($F_{3,276} = 122.6$, $p < 0.0001$) and a product \times week interaction ($F_{27,2484} = 36.6$, $p < 0.0001$). No other effects in the model were significant. Given the unique schedule of radio ads for each product, the effects of week and store group were examined within the level of product via 10 two-way ANOVAs with week and store group as the repeated and between-group factors, respectively, and weekly unit sales as the dependent variable. Table 2 presents the means and standard deviations corresponding to each of these ANOVAs.

Disposable razors (for females)

Given the schedule of radio ads, only Hypothesis 3 could be tested for disposable razors. Results indicated a main effect of week ($F_{3,371} = 7.0$, $p < 0.0002$). A Duncan multiple range test indicated that daily unit sales were higher in Week 4 ($M = 5.5$) than in Weeks 1 ($M = 3.3$), 2 ($M = 3.7$) or 3 ($M = 4.2$), but none of the other mean differences were different at the $\alpha = 0.05$ level of significance. This pattern suggests an effect of the mail circular. However, the week \times store group interaction effect was not significant ($F_{3,371} < 1$), indicating that the in-store radio ads did not produce an incremental sales lift. Indeed, unit sales in Week 4 were lower in the test stores compared to the control stores, so Hypothesis 3 was not supported.

Shaving cream (for females)

The schedule for the shampoo product allows for a test of Hypothesis 2. Results indicated a main effect of week ($F_{3,371} = 12.7$, $p < 0.0001$). A Duncan multiple range test indicated that daily unit sales were higher in Weeks 1 ($M = 3.9$), 2 ($M = 4.2$) and 3 ($M = 3.8$) than they were in Week 4 (2.0). None of the other means were different at the $\alpha = 0.05$ level of significance. This pattern corresponds to an effect of the price discount. However, the week \times store group interaction was not significant ($F_{3,371} < 1$). Moreover, the weekly variation described above was similar for store groups A and B, despite the differing radio advertising schedules by the store group. Hence, the in-store radio advertising added little or no incremental volume, which refutes Hypothesis 2.

Soft drink

The ad schedule for the soft drink allowed for a test of Hypotheses 1 and 3. Results indicated a main effect of week ($F_{3,369} = 29.9$, $p < 0.0001$). Consistent with a sales effect

Table 2. Means and standard deviations for daily unit sales by product, week and store group^a.

	Disposable razors ^b H ₃ : Not supported		Shaving cream ^c H ₂ : Not supported		Soft drink ^b H ₁ : Supported H ₃ : Not supported		Liquid detergent ^b H ₃ : Not supported		Underwear ^{c,d} H ₁ : Supported H ₂ : Supported	
	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
Week 1 (11–17 Jan)	3.1 (2.3)	3.6 (2.9)	3.8 (2.9)	4.0 (3.2)	14.6 (41.7)	11.0 (9.8)	16.9 (9.5)	16.7 (11.9)	0.0 (0.0)	0.0 (0.0)
Week 2 (18–24 Jan)	3.2 (4.6)	4.2 (2.7)	4.0 (3.3)	4.4 (3.0)	12.2 (17.0)	13.1 (18.0)	20.0 (10.4)	16.6 (12.3)	1.8 (2.9)	3.2 (4.0)
Week 3 (25–31 Jan)	3.9 (3.5)	4.6 (3.8)	3.9 (2.7)	3.6 (2.9)	41.3 (47.1)	42.6 (36.4)	33.7 (17.6)	32.3 (19.6)	11.2 (8.3)	12.4 (8.4)
Week 4 (1–7 Feb)	5.7 (4.0)	5.3 (3.5)	2.2 (1.8)	1.7 (1.6)	88.1 (110.9)	64.9 (68.0)	40.1 (19.9)	36.3 (19.7)	12.9 (7.1)	9.5 (6.0)
	Chlorine pool treatment H ₂ : Not supported		Disposable cameras ^c H ₁ : Supported H ₂ : Not supported		Sandwich toaster ^b H ₃ : Not supported		Powdered detergent ^b H ₃ : Not supported		Kitchen wipes H ₂ : Not supported	
	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
Week 1 (11–17 Jan)	8.4 (7.6)	6.7 (7.6)	0.7 (0.9)	1.0 (1.5)	1.4 (1.9)	1.2 (1.9)	6.3 (4.8)	5.7 (3.7)	2.5 (2.2)	3.0 (3.1)
Week 2 (18–24 Jan)	6.5 (6.4)	5.1 (6.3)	0.8 (1.1)	0.8 (1.2)	1.3 (1.5)	1.6 (3.4)	7.0 (4.5)	5.9 (3.3)	3.6 (4.3)	2.2 (2.1)
Week 3 (25–31 Jan)	8.6 (7.5)	6.8 (8.0)	14.3 (7.9)	16.2 (10.0)	0.6 (0.9)	0.2 (0.7)	10.6 (6.0)	11.4 (7.4)	4.9 (4.2)	5.2 (5.6)
Week 4 (1–7 Feb)	9.3 (6.3)	8.2 (10.3)	3.1 (2.7)	2.8 (3.7)	13.3 (8.1)	13.3 (8.6)	13.2 (7.9)	14.2 (8.6)	2.6 (4.1)	1.9 (2.1)

^a Standard deviations are in parentheses.^b Mail circular effect is significant at $\alpha = 0.05$.^c Discount effect is significant at $\alpha = 0.05$.^d In-store radio effect is significant at $\alpha = 0.05$.

of the circular, daily unit sales were higher in Week 4 ($M = 76.8$) than in Week 1 ($M = 12.9$) or 2 ($M = 12.6$). However, sales in Week 3 were at an intermediate level ($M = 41.9$), perhaps reflecting planned activities for the Australia Day holiday on January 26th. The week \times store group interaction effect was not significant ($F_{3,369} = 1.1$, $p < 0.35$). Moreover, the weekly pattern described above emerged for both store groups, despite the differing radio ad schedules. These results are consistent with Hypothesis 1, but refute Hypothesis 3.

Liquid detergent

The promotional schedule for the liquid detergent allowed for a test of Hypothesis 3. The results indicated a main effect of week ($F_{3,371} = 43.7$, $p < 0.0001$). Consistent with the delivery of the circular, a Duncan multiple range test indicated that daily unit sales were higher in Week 4 ($M = 38.2$) compared to Weeks 1 ($M = 16.8$) and 2 ($M = 18.4$). However, once again Week 3 sales were at an intermediate level ($M = 33.0$) at the $\alpha = 0.05$ level of significance. Unlike the corresponding soft drink effect, sales of this product are not as obviously linked to Australia Day, unless the need to stock up for the holiday also triggered unrelated purchases. With respect to the in-store radio advertising, the week \times store group interaction effect was not significant ($F_{3,371} < 1$). Moreover, an inspection of the means revealed that sales in Week 4 were actually higher in the control group ($M = 40.1$) than in the test group ($M = 36.3$), which does not support Hypothesis 3.

Underwear (for men)

The advertising schedule for men's underwear allowed for a test of Hypotheses 1 and 2. Once again, there was a main effect of week ($F_{3,371} = 109.6$, $p < 0.0001$). Daily unit sales were higher in Weeks 3 ($M = 11.8$) and 4 ($M = 11.3$) than in either Week 2 ($M = 2.4$) or 1 ($M = 0.0$), a result that does not correspond to the onset of the price discount, which appeared in Week 4 only. This again may reflect unplanned purchases of irrelevant items for shoppers stocking up for the Australia Day holiday. In addition, there was a week \times store group interaction effect ($F_{3,371} = 3.7$, $p < 0.01$). A breakdown of this interaction effect revealed that it emerged mainly in Weeks 3 and 4, when in-store radio advertising varied by store group ($F_{1,186} = 4.4$, $p < 0.05$). Further tests of simple main effects revealed that unit sales were higher in the test stores ($M = 12.9$) compared to the control stores ($M = 9.5$) in Week 4, when the target product was discounted ($F_{1,93} = 6.2$, $p < 0.01$). However, no mean difference emerged in Week 3, when the product was advertised at its regular price ($F_{1,93} < 1$). These results support Hypotheses 1 and 2.

Chlorine pool treatment

The ad schedule for the chlorine pool treatment allowed for a test of Hypothesis 2. The ANOVA for the chlorine pool treatment product revealed a main effect of week that was suggestive of an effect of the discount ($F_{3,371} = 2.5$, $p < 0.10$). A Duncan multiple range test indicated that unit sales in Week 4 ($M = 8.8$), the week of the price discount, were higher than that in Week 2 ($M = 5.8$), with Weeks 1 ($M = 7.6$) and 3 ($M = 7.7$) at intermediate levels. There was also an unexpected main effect of store group ($F_{1,371} = 3.6$, $p < 0.05$), wherein sales in group A (8.2) were higher than that for group B ($M = 6.7$), perhaps indicating an uneven distribution of pools in the neighbourhoods surrounding the stores in each group. However, the week \times store group interaction effect was not

significant ($F_{3,371} < 1$), and Week 4 sales were actually higher in the control stores ($M = 9.3$) compared to the test stores ($M = 8.2$), which reflects the general pattern for the entire test period. Hence, there is little evidence to support Hypothesis 2.

Disposable cameras

The advertising schedule for the disposable cameras allowed for tests of Hypotheses 1 and 2. The results of the ANOVA revealed a main effect of week ($F_{3,372} = 196.6$, $p < 0.0001$). A Duncan multiple range test indicated that sales in Week 3 ($M = 15.3$) were higher than sales in Week 4 ($M = 2.9$), which were higher than sales in Weeks 1 ($M = 0.8$) and 2 ($M = 0.8$). The substantial increase in Week 3 corresponds to the Australia Day, which provides numerous photo opportunities. Despite the effects of the holiday, the discount in Week 4 still seems to have created a lift in sales over the baseline in Weeks 1 and 2. However, neither the main effect of the store group ($F_{1,372} < 1$) nor the week \times store group interaction ($F_{3,371} < 1$) attained significance, suggesting that the in-store radio ads had little or no incremental effect on sales, which is consistent with Hypothesis 1, but refutes Hypothesis 2.

Sandwich toaster

The ad schedule for the sandwich toaster only allowed for a test of Hypothesis 3. The resulting ANOVA revealed a main effect of week ($F_{3,372} = 176.1$, $p < 0.0001$). A Duncan multiple range test indicated that sales in Week 4 ($M = 13.3$) were higher than that in Week 1 ($M = 1.3$), 2 ($M = 1.4$) or 3 ($M = 0.4$). This indicates a substantial effect of the circular on sales. However, neither the main effect of the store group ($F_{1,372} < 1$) nor the week \times store group interaction effect ($F_{1,372} < 1$) was significant. Moreover, in Week 4 unit sales in the test stores ($M = 13.3$) were identical to those in the control stores ($M = 13.3$); hence, Hypothesis 3 was not supported.

Powdered detergent

The promotional schedule for the powdered detergent also only allowed for a test of Hypothesis 3. The ANOVA revealed that the main effect of week was significant ($F_{3,371} = 35.5$, $p < 0.0001$). A Duncan multiple range test indicated that sales in Week 4 ($M = 13.7$) were higher than that in Week 3 ($M = 11.0$), which were higher than that in Week 1 ($M = 6.0$) or 2 ($M = 6.5$). This suggests, once again, that the circular was effective at increasing sales. As with the liquid detergent, the sales increase in Week 3 may reflect the incidental purchases of shoppers preparing for the Australia Day. Neither the main effect of store group ($F_{1,371} < 1$) nor the week \times store group interaction effect ($F_{3,371} < 1$) was significant. Although daily unit sales in Week 4 were higher in the test stores ($M = 14.2$) than in the control stores ($M = 13.2$), this effect did not approach significance ($F_{1,93} < 1$). Hence, there was little or no incremental effect of the in-store radio ads on sales, and once again, Hypothesis 3 was not supported.

Kitchen wipes

The ad schedule for the kitchen wipes allowed for a test of Hypothesis 2. The ANOVA revealed a main effect of week ($F_{3,372} = 11.1$, $p < 0.0001$). However, a Duncan multiple range test indicated that sales in Week 3 ($M = 5.1$) were higher than that in Week 1 ($M = 2.8$), 2 ($M = 2.9$) or 4 ($M = 2.2$). Since the product was discounted in Weeks 1–3,

this effect is not easily interpreted as a promotional effect, but rather, may reflect the Australia Day holiday (i.e. picnics and parties involving messes). Neither the main effect of the store group ($F_{1,372} < 1$) nor the week \times store group interaction ($F_{3,372} = 1.5$, $p < 0.22$) was significant. Hence, neither the price discount nor the in-store radio ads produced an increase in sales, with the latter result refuting Hypothesis 2.

Discussion

Before discussing about theoretical and practical implications, it is important to identify some of the limitations of this research. In addition to the usual shortcomings of field experimentation with respect to controlling for external influences on sales, this research suffers from an experimental design that often confounds the effects of price discounts, mail circulars and in-store radio ads. Managers are not as concerned with strength of inference as they are with sales levels. The promotional schedule in Table 1 was designed with financial, rather than scientific objectives in mind. Future research would benefit from orthogonal manipulations of key promotional variables. With respect to the statistical validity, the dependent variable was weekly unit sales, which provided only four observations per store over the test period. Using daily unit sales, data would have provided seven times as many observations, increasing the statistical power of the between-group comparisons. Given the sizes of the standard deviations reported in Table 2, this is a concern in cases where the means were directionally consistent with the expectation that the promotion increased sales (i.e. as with sales of soft drinks in Week 4).

These limitations notwithstanding, in-store radio advertising was generally ineffective at increasing sales of regularly priced, discounted and featured products. In only 1 of 10 test products did radio ads produce a sales lift, for discounted men's undershirts and briefs. These results are consistent with Hypothesis 1, but do not support Hypotheses 2 and 3. From a managerial perspective, the most obvious conclusion from these findings is that mail circulars are more effective than in-store radio, since the circular increased sales in all five tested products. Although the literature review above indicates that direct mail is an effective medium for communicating price incentives, in-store radio would appear to have the advantage of being a point-of-purchase medium capable of influencing unplanned purchases (Dukes and Liu 2010). Given that all the test products were discounted, and that shoppers' awareness of price incentives is often limited (Dickson and Sawyer 1990; Vanhuele and Dreze 2002), in-store radio should have had an obvious advantage in triggering unplanned purchases. However, there are at least three reasons why in-store radio may have failed to produce reliable sales increases in this study.

First, the advertising schedule of three 30-second spots per hour might not have been sufficient to reach many of the shoppers who entered the store during the test period, but who left prior to hearing many of the test ads. Without a detailed knowledge of the distribution of shopping times for the variety discount retail category, it is difficult to determine the optimal schedule. Future research would benefit from observational research to determine how long shoppers typically spend in the store during different times of the day and different days of the week. With this information, it would be possible to vary the advertising schedule such that every customer hears at least one ad, but not more than three ads so as to avoid annoying shoppers. So, one key recommendation following from this research is that retailers should conduct research to determine the distribution of shopping times within their stores, which would allow them to set ad schedules yielding known levels of reach and frequency for the population of shoppers visiting the store during each promotional period.

Second, although in-store radio is a point of sale medium, it is one of the few audio communications in an otherwise visual environment. In many contexts, this uniqueness would be an advantage in terms of attracting attention, but shopping is an inherently visual and spatial task; and even if an in-store radio ad successfully communicates a price discount, an interested consumer must still find the featured product within the store to make the purchase. But unlike with supermarket shopping, where shoppers tend to move through the entire store in a set pattern, there is no guarantee that shoppers will eventually pass by featured items in a variety discount store. Instead, radio ads must guide shoppers to the promoted items. So, a second recommendation is that, in-store radio ad content should include a visual cue the directing shoppers to the relevant merchandising space in the store (i.e. 'You'll find this incredible bargain at the end of aisle seven...').

Finally, consumers are creatures of habit. Mail circulars are a fairly common form of advertising for this variety discount chain and they regularly arrive on the first week of each month, so that these consumers may simply be used to looking for them. By contrast, in in-store radio advertising, it is still relatively new in Australian variety discount stores. It may simply take time for consumers to learn to listen for good deals while they shop. Hence, a final recommendation is that in-store radio ads should be integrated with feature ads in newspapers, mailboxes and other media, perhaps even referring to specific media vehicles (i.e. 'As featured in the weekend edition of the Times...'). This may have the effect of legitimising the relatively unfamiliar in-store medium, focusing shoppers' attention on the promoted items and increasing the perceived value of the promotions.

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