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Online versus offline promotional communication: Evaluating the Effect of Medium on Customer Response

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Online versus offline promotional communication:

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Abstract

The effectiveness of online versus offline promotional communication is an important marketing issue. This study estimates the effect of online versus print promotional communication on customer response. It employs a field experiment comparing the effectiveness of print versus online store flyers regarding the memory and actual shopping behavior of more than 9,000 retail customers. Evidence shows that print and online flyers achieve equal results in terms of purchase behavior and memory. Thus, the findings suggest that retailers and brands can focus on cost and reach when making investment decisions on print and online advertising.

Management Slant

- Results indicate that customers respond equally to print versus online promotional communication, such that print and online flyers elicit the same customer response in terms of purchase behavior and memory.
- Results suggest that retail and brand investment in print and online advertising can be based on cost and reach considerations only. Print and online advertisements can be complementary as long as they are employed to target different audiences.
- The current investment in print flyers could be reduced since online flyers have more flexibility, lower costs, and richer insight for the negotiation of promotional investments between brands and retailers.

Keywords: *online vs. print; media effectiveness; customer response; promotional communication.*

Introduction

Brands and retailers have growing opportunities for promotion and communication as consumers spend more time online. As a result, global spending on online advertising has increased (Kirk *et al.*, 2015) and reached $200 billion at the end of 2015 (Juniper Research, 2015). Despite this marked increase in the popularity of new digital media, few studies have researched customer response in terms of purchase behavior to traditional (*i.e.*, offline) versus digital (*i.e.*, online) media in the context of promotional communication. This gap in research is surprising since this is a pressing marketing issue (Danaher and Dagger, 2013) at the center of managerial debate, as highlighted by press and business articles (Google, 2014; Kapner, 2015; Strauss, 2015).

In this context, substituting online promotional communication for print appears desirable for cost and marketing considerations. Online promotional communication costs less to produce and customize, is measurable, and has no environmental impact. Further, it can be quickly adjusted in response to competitors. Additionally, more brands can be featured online, increasing the number of interested brands. Despite these advantages, the inherent risk in substitution is related to the lack of knowledge about the different effects of print versus online communication.

Store flyers require a substantial part of promotional communication budgets in many countries (Gázquez-Abad, Martínez-López, and Barrales-Molina, 2014). Store flyers are print advertisements used to promote new stores and products and communicate price specials (Pieters, Wedel, and Zhang, 2007). US retailers spent more than $20 billion on flyers in 2010 (PRIMIR, 2013), representing 65% of the average communication budget (Nielsen, 2011). Similar percentages have been reported for European retailers (Infoadex, 2015). Retailers obtain contributions from manufacturers to feature their brands in weekly flyers. For example, McKinsey & Company, a global management consulting firm, estimates the typical investment in flyers is around 1% of a brand's gross sales (Alldredge, Brown, and Magni, 2016). Online flyers are electronic versions of print flyers that are coupled with basic browsing functionalities (*e.g.*, zoom, full screen mode). Retailers are increasingly introducing

online flyers (Ziliani and Ieva, 2015) to meet the growing demand, as 30% of US shoppers now read online flyers (Vertis Customer Focus, 2013). Sport Chek, the largest Canadian sports retailer, estimates that it could reduce the $20-million spent annually on print flyers by up to 40% by transitioning to an online flyer (Strauss, 2015). Therefore, retailers and brands are motivated to improve their media budget allocation (Danenberg *et al.*, 2015) and negotiation of marketing contributions (Ziliani and Ieva, 2015).

This paper studies the comparative effects of print and online media on customer response, and, to the best of the authors' knowledge, is the first to measure purchase behavior, as previous studies focused on consumer memory and attitude (*e.g.*, Wakolbinger, Denk, and Oberecker, 2009). This study employs a field experiment involving actual customers to increase the ecological and external validity of the research on media effects, which is a key issue in advertising research (Nan and Faber, 2004).

The results indicate that print and online promotional communication do not differ in their effect on purchase behavior and memory. Hence, decisions on media investment should be based solely on cost and reach capability. Finally, this study provides further research directions and practical implications for manufacturers and retailers regarding communication and promotional investment.

Print versus online effectiveness

A medium, which is defined as "a transmission vehicle, channel or device through which messages are transmitted from senders to receivers," is a variable that can alter the nature of communication (Sundar *et al.*, 1998:823). Previous comparisons of print versus online presentations of the same content have measured media effectiveness in terms of memory, attitude, and purchase intention. Existing studies primarily compared print and online informative or persuasive advertisements in lab experimental settings. However, these studies exhibited conflicting results, alternately providing support for the equal effectiveness between print and online, online superiority, or print superiority.

Memory

Several studies found no difference between the effect of print and online communication on consumer memory, concluding that these media are equally effective in terms of memory (*e.g.*, Gallagher, Foster, and Parsons, 2001; Gallagher, Parsons, and Foster, 2001, Wakolbinger, Denk, and Oberecker, 2009).

One study compared online versus print coupons and found that subjects processed the online price information more accurately in a low-motivation scenario (*e.g.*, grocery shopping) and the print price information in a high-motivation scenario *(e.g.*, shopping for durable goods similar to cars) (Suri, Swaminathan, and Monroe, 2004). Hence, print and online promotions yield different results in terms of memory depending on the scenario in which the information processing occurs.

Finally, other studies reported that print is superior to online communication in terms of memory, attitude towards the presented content, and purchase intention, which was attributed to physical differences (Sundar *et al.*, 1998). Computer screens and web-based physical-medium interfaces (*e.g.,* display screens and keyboards) limit readers' attention and involvement with the presented offer, thus reducing the amount of information processed online (Griffith, Krampf, and Palmer, 2001; Jones, Pentecost, and Requena, 2005; Magee, 2013).

The superiority of print from previous research can be attributed to potential biases. In several studies, information retrieval was measured by a paper retrieval cue, which shares the same modality as one level of the independent variable, which may affect memory performance (Costley, Das, and Brucks, 1997). Further, lab experiments have largely involved students and short-term measures of memory in forced exposure conditions. The only field study comparing print versus online publication effectiveness (Magee, 2013) was quasi-experimental due to self-selection issues. Hence, the extent of the superiority of print in terms of memory due to the medium rather than the participants' characteristics cannot be inferred. Finally, it can be argued that previous studies, dating back to the early 2000s, are challenged by the continuous technological change affecting digital interfaces and their adoption by consumers. Therefore, the authors posit the following research question:

RQ1: Is print promotional communication more effective than online promotional communication in terms of consumer memory?

Purchase behavior

Attitude and purchase intention measures differ from actual purchase behavior (Thorson, Chi, and Leavitt, 1992). Hence, "action measures" (Stewart, 1989:57), such as store visits or sales at an aggregate or individual level, are often used in market response models and contribute to estimating customer response (Assael, 2011). Print, radio, television, outdoor, and online advertising improve sales (Abraham, 2008; Wood, 2009). However, few studies have compared these media effects on sales (Nysveen and Breivik, 2005). For instance, television is superior to online media in terms of reach (Briggs, Krishnan, and Borin, 2005; Romaniuk, Beal, and Uncles, 2013; Taylor *et al*., 2013) and slightly superior in terms of sales (Taylor *et al.*, 2013). However, to the authors' knowledge, no study has estimated print versus online effectiveness on purchase behavior by adopting a comparative perspective. Hence, the authors formulate the following research question:

RQ 2: Do print and online promotional communication differ in their effect on purchase behavior?

In this study, the effectiveness of print versus online flyers is measured in a consumer packaged goods (CPG) setting. This work estimates short-term responses since previous research showed that long-term effects cannot exist without short-term or medium-term effects (Lodish *et al.*, 1995). Finally, online and print promotional communication are considered holistically, which is common in this research area (Magee, 2013).

Research Design and Methodology

Setting

The setting for this field experiment is a supermarket retail chain with 37 stores that targets its customers with a biweekly print and online flyer available on the retailer website.

The flyer has a validity of 14 days and a length of 32 pages. It promotes 268 items featuring different types of promotions. Of the 154 brands included, 13% belong to leading (national) brands, 14% belong to following (national) brands, 15% belong to private labels, and the remaining 58% belong

to other brands (national brands with a lower market share). The online flyer (Fig. A.1 – Appendix A) is a direct replication of the print flyer, with no banners, videos, or embedded hyper-textual links. The user can click on the pages to zoom or move to another page, and can choose between different zoom levels. These options are the same as those available for any common .pdf document.

Research design

A pilot study was first performed to address feasibility issues that can arise in field experiments. The pilot study involved 882 customers and four experimental conditions: online only, print only, both print and online, and no-flyer. In the pilot study, only a small percentage of customers browsed both the online and print flyers (6%). Hence, this condition was removed from the full-scale experiment.

The full study employs a between-subject experimental design to compare two treatments (Shadish, Cook, and Campbell, 2002) with a control group. The groups received the following treatments: online flyer only, print flyer only, and no flyer. A random sample of 9,902 subjects was extracted from the customer database. Subjects were randomly assigned, resulting in 3,301 customers belonging to the print group, 3,301 to the online group, and 3,300 to the control group. Randomization was performed by means of SAS 9.4.

A delivery agency delivered the print flyer to the subjects' specified addresses. The online flyer was delivered by an email message containing a hyper-textual link to the online flyer. The control group did not receive any flyer. At the end of the promotional period, subjects belonging to the print and online groups were randomly selected via a computer-assisted telephone interviewing (CATI) survey. The survey was conducted at the end of the promotional period to avoid the "mere measurement effect" where the questionnaires may change subsequent purchase behavior (Morwitz and Fitzsimons, 2004). The flyer delivery for the subsequent promotional period was delayed until survey completion to avoid respondents' interaction with the new issue of the flyer.

As a manipulation check, subjects who agreed to be interviewed were asked to confirm whether they received and browsed the flyer in the assigned version only. To maximize the ecological validity, the online recipients were free to browse the online flyer with a device of their choice. However,

respondents were asked to specify which device they used, which was not related to the observed outcomes. Whether respondents had browsed the print or online flyer in the store and/or competitors' flyers were also verified.

Effectiveness measures

Memory was measured by the method of recall (free and cued), recognition, and advertisement memory. While recognition is a test of whether the information has been stored in memory, recall implies both the encoding and retrieval of the information (Tulving and Pearlstone, 1966). The advertisement memory was employed to obtain an overall measure of memory (Sundar *et al.*, 1998). Two independent judges classified the free recall attempts as correct or incorrect, and discrepancies were solved by a third judge, as in Suri, Swaminathan, and Monroe (2004). Cued recall was measured by three questions that asked respondents to recall the discount amount for two products and the category of products on a special promotion featured in the flyer. Free recall and cued recall scores were computed and summed, resulting in an overall recall score. This is a frequently employed procedure in the advertising field (*e.g.*, Norris and Colman, 1992). Recognition was assessed by three questions that asked respondents to recognize a brand, a type of offer, and a recipe featured in the flyer. A fictitious recognition item was added to detect false-positive responses. Finally, the ad memory score was computed by the sum of correct responses to the recall and recognition questions, as in Sundar *et al.* (1998).

After collecting the survey data, information on purchase behavior from the customer database recorded during the 14-day promotional period was extracted at the individual level for all respondents. To measure flyer-related purchase behavior, the effect of print versus online promotional communication was investigated based on the following outcomes:

- The number of store visits in the promotional period;
- The number of flyer-promoted products purchased; and,
- The amount spent on flyer-promoted products in the promotional period.

Analytic strategy

The following two analyses were conducted following Shadish, Cook, and Campbell (2002) using SAS 9.4.

First, intention-to-treat (ITT) analysis was employed with the assumption that participants received the treatment to which they were assigned. The ITT analysis involved a comparison of the 3,301 customers assigned to receive the online flyer, the 3,301 customers assigned to receive the print flyer, and the 3,300 assigned to the control group. It was conducted on purchase behavior outcomes only because memory was measured by the CATI survey. Further details on the ITT analysis are provided in Appendix B.

Second, analysis of compliers yields a quasi-experimental comparison between the subjects who received the assigned treatment. The subjects who received and browsed the flyer in the assigned form (print or online) and those excluded from the treatment (control group) are considered compliers. This analysis was conducted on both memory measures, and the purchase behavior was recorded in the customer database by loyalty cards.

The CATI survey contacted all 9,902 treated customers to identify the compliers, and 1,222 agreed to participate in the survey, a 12.3% response rate. Of the 1,222 respondents, 102 reported having browsed the online flyer, 101 reported having browsed the print flyer, and 102 confirmed having not received and not browsed the retailer flyer. Consequently, 305 respondents were identified as compliers. The compliers were largely females (75.9%) with an average age of 43 years who were all in charge of grocery shopping for their household. The self-reported rate of whether the respondents opened the flyer did not significantly differ between the print (22.4%) and online (19.5%), $\chi 2$ (df = 1) = 1.2 p = 0.27, formats.

Results

Flyer effectiveness

Before comparing the print and online flyers, the authors tested whether the flyer was effective. Effectiveness was tested (Table 1) by comparing the exposed subjects (the print and online groups) versus the unexposed subjects (control group) with reference to the ITT analysis (receipt of the flyer) and the analysis of compliers (actual exposure to the flyer).

The ITT analysis revealed that purchase behavior did not differ in response to receipt of the flyer. The store visits, flyer-promoted products purchased, and the amount spent on flyer-promoted products did not differ significantly between the flyer groups and the control group.

On the contrary, the analysis of compliers showed that subjects who received and browsed the flyer displayed different purchase behavior in comparison to the control group. Subjects exposed to flyers visited the store more often, χ^2 (df = 1) = 3.3, p = 0.07, and bought more flyer-promoted products, χ^2 (df = 1) = 3.9, p < 0.05. These significant differences among compliers can be attributed to the usage effect (Romaniuk, Bogomolova, and Dall'Olmo Riley, 2012; Vaughan, Beal, and Romaniuk, 2016) such that customers who purchase more products are more likely to open a flyer or a promotional communication from the retailer.

Table 1: Statistics on shopping behavior in the ITT analysis and analysis of compliers

ITT Analysis	***Mean (std. dev.)***	
Variable	***Flyer group***	***Control group***
Number of store visits	1.6 [ns] (*2.2*)	1.5 (2.1)
Amount spent on flyer-promoted products (€)	19.5 [ns] (*22.0*)	18.7 (20.7)
Number of flyer-promoted products purchased	12.3 [ns] (*14.0*)	12.0 (14.4)
N	6602	3300
Analysis of compliers	***Mean (std. dev.)***	
Variable	***Flyer group***	***Control group***

Number of store visits	2.1 *	1.6
	(*2.8*)	(*1.7*)
Amount spent on flyer-promoted products (€)	21.3 ns	15.7
	(*23.1*)	(*16.1*)
Number of flyer-promoted products purchased	13.8 **	9.6
	(*15.5*)	(*9.5*)
N	203	102

*ns=not significant; * p <0.10; ** p <0.05.*

Print versus online: ITT analysis

The first step of the analyses was the ITT analysis (Table 2). A negative binomial regression model was conducted for count outcomes to account for the high over-dispersion present in the data. The ITT analysis clearly indicates that assignment to the print or online flyer did not have a significant effect on the store visits or the flyer-promoted products purchased. The number of store visits and the number of flyer-promoted products purchased were not significantly different between the print and online flyers, χ^2 (df = 1) = 0.2, p = 0.63 and χ^2 (df = 1) = 0.8, p = 0.36, respectively. Finally, an ANOVA was run on the log-transformed amount spent on the flyer-promoted products and showed no difference between the print and online flyers, F(1,3741) = 1.5, p = 0.22.

Table 2: ITT analysis: means (std. dev.) on purchase behavior

Variable	**Online**	**Print**
Number of store visits	1.5 ns	1.6
	(2.2)	(2.2)
Amount spent on flyer-promoted products	19.0 ns	19.9
	(21.2)	(22.7)
Number of flyer-promoted products purchased	12.1 ns	12.5
	(13.8)	(14.3)
N	3301	3301

*ns=not significant, * p <0.10; ** p <0.05.*

Print versus online: analysis of compliers

The second step of the analyses was the analysis of compliers (Table 3). The analytic strategy for the analysis of compliers is available in Appendix C, Table C.1. No difference was found between the print and online flyers in terms of the memory measures. Respondents exposed to the online flyer did not differ from those exposed to the print flyer in terms of recall, χ^2 (df = 1) = 0.03, p = 0.86, recognition, χ^2 (df = 1) = 1.9, p = 0.16, and ad memory, χ^2 (df = 1) = 0.4, p = 0.54. The same result was found for purchase behavior. The print and online groups did not differ in terms of store visits, χ^2 (df = 1) = 0.4, p = 0.52, flyer-promoted products purchased, χ^2 (df = 1) = 0.4, p = 0.52, and amount spent on flyer-promoted products, F (1,131) = 1.4, p = 0.25.

Table 3: Analysis of compliers: means (std. dev.) on memory and purchase behavior

Variable	Online	Print
Recall	1.7 ^{ns}	1.7
	(1.6)	(1.7)
Recognition	0.5 ^{ns}	0.3
	(0.6)	(0.5)
Ad memory	2.2 ^{ns}	2.0
	(1.8)	(1.8)
Number of store visits	2.1 ^{ns}	2.1
	(2.5)	(3.0)
Amount spent on flyer-promoted products (€)	23.8 ^{ns}	18.8
	(25.9)	(19.6)
Number of flyer-promoted products purchased	14.7 ^{ns}	12.9
	(16.5)	(14.4)
N	102	101

*ns=not significant, * p <0.10; ** p <0.05.*

Conclusions and implications

Conclusions

This study compares the effect of print versus online promotional communication on grocery customer response through a field experiment.

This study contributes to research on media effectiveness. For RQ1, this study determined that there is no difference in memory of promotional content between print and online media. All of the memory measures in this study support this conclusion. These results indicate that the physical differences between online and print media do not limit information processing when content is presented through an online medium.

For RQ2, there is substantial evidence across two levels of analysis that online and print media perform equally in terms of purchase behavior. The ITT analysis employed on a large sample (6,602 customers) shows that, in the absence of proper targeting, print and online media result in equal purchase behavior. The analysis of the customers exposed to the print or online flyers (analysis of compliers) confirms this conclusion.

In summary, print and online media equally affect purchase behavior and memory.

Practical and managerial implications

The comparative effectiveness of print versus online flyers is a pressing marketing issue that has aroused strong debate among practitioners. The results of this study address this debate and have several implications for marketing strategies. The study finds that print and online media are equally effective on memory and purchase behavior. Hence, advertising communication budgets can be allocated between print and online media based on reach and cost considerations only. Implications for "brick and mortar," "brick and click" and "e-commerce pure player" retailers are discussed below.

For "brick and mortar" and "brick and click" retail stores, three scenarios can be hypothesized: retailers focused on cost reduction for their marketing communication strategy; retailers focused on sustaining the reach of their marketing communications; and, retailers pursuing a balance between cost reduction and reach.

This study shows that online flyers lead to the same memory and purchase behavior as print. Thus, retailers seeking to reduce costs could cease print communication and rely exclusively on online formats. By shifting to online communication, however, retailers may reduce the reach previously

granted by print. However, a fully online promotional strategy will grant greater flexibility. For instance, retailers could leverage individual customer data on purchase behavior to target consumer segments with personalized offers (*e.g.*, the categories, brands, or products featured in the flyer could be customer specific).

Retailers willing to sustain reach could opt for a mix of print and online communication. This strategy relies on insights derived from customer online browsing behavior. Retailers could send print flyers only to those customers who never opened an online flyer by using "addressed mail" instead of door-to-door distribution. The remaining customers could be targeted with online flyers that are customized based on purchase behavior history at the customer level (as described in the previous scenario). This approach would take advantage of the flexibility of online media without losing the reach of print. However, as "addressed mail" entails higher distribution costs compared to door-to-door, the total cost reduction would depend on the penetration of the online flyer browsing behavior among the customer base.

Finally, retailers seeking to balance cost reduction and reach could reduce costs by making print promotional communication available in store and through online media only. Retailers could make print flyers available only at the entrance of the store, stopping delivery to the customers' homes, while reaching each customer with digital flyers. This approach would also reach those customers who do not browse online flyers. However, issues of consistency could emerge between the instore print and online versions. Customers could receive or view a customized online flyer that differs from the standardized in-store print flyer. This could prevent retailers from fully exploiting the flexibility of online media.

Finally, for e-commerce pure players, the broad adoption of "omni-channel" strategies testifies that reach is the priority (Pauwels and Neslin, 2015; Walsh, 2016) rather than cost reduction. Similar to developing a physical presence (*i.e.,* owning a store, "click and collect") to reach additional audiences, they might consider physical communication alongside digital. Results on the equal

effectiveness of online and print communication might encourage them to invest in print communication.

The results of this study support increased investment in online promotional communication. This has implications for retail negotiation and manufacturer relationships. For example, digital flyers have virtually no limits to the number of pages and versions, thus creating opportunities for featuring more brands, products, and categories, which could result in a greater volume of promotional contributions (fees) that retailers receive from suppliers. Additional advantages arise for retailers to exploit data about customer interaction through digital communication. In-page analytics (*e.g.*, click and zoom rates for different brands) can generate meaningful insights that the retailer could leverage in the negotiation process with suppliers. Specifically, a higher promotional fee could be for manufacturers with products that seem less attractive (lower zoom rate). Thus, fee negotiation could become more dynamic with these new insights. New opportunities also arise for manufacturers. Local and niche brands that are seldom featured by retailers in print flyers could reach their target customers in targeted digital flyers. Furthermore, national brands could produce their own "flyer" made available through their digital assets (website, social media pages) or through emerging flyer aggregators. Flyer aggregators are platforms that display and send store flyers or ad-hoc promotional communications to their subscribed users (Ziliani and Ieva, 2015), and currently attract millions of shoppers across several countries (Ziliani, 2015). To the extent that these platforms offer similar reach and more space to featured brands at a lower cost than the retailers' digital platforms, manufacturers could shift part of their promotional investments from print to online, and also from retailers to flyer aggregators. In the long term, the shift to online promotional communication might affect the power in marketing channels.

Limitations and suggestions for further research

Although this study contributes to literature on the effectiveness of print versus online media, it has several limitations. A survey was the only research instrument capable of assessing the receipt and

browsing of print flyers and measuring memory. Thus, attrition problems were unavoidable. Hence, a loss of statistical power and non-response bias might affect the external validity of the results for compliers.

Since the respondents could choose whether to be compliers, self-selection bias could unbalance the groups as print and online respondents might have different distributions of their observable characteristics. This might have influenced the results of the analysis of compliers. This limitation is less problematic for purchase behavior because both ITT analysis (which preserves randomization) and the analysis of compliers were employed, and both methods yield the same results.

Further, the survey was conducted 14 days following the delivery of the treatment, to avoid a "mere-measurement" effect on shopping behavior. This required the use of delayed measures of memory, different from those employed in previous studies.

Another limitation arises from not standardizing the type of device used to browse the online flyers to maximize ecological validity. Considering the growing stream of studies on mobile advertising (*e.g.*, Varan *et al.*, 2013; Goh, Chu, and Wu, 2015), the exploration of the effect of the type of device (tablet versus laptop versus mobile) and type of mobile browsing tool (mobile app versus mobile browser) in promotional communication is highly advisable.

Further research should measure the heterogeneity of customer response to online versus print promotional communication by comparing print and online effects within customer segments. This would add valuable theoretical and practical contributions.

As this study researched a low-involvement purchase situation, future research should explore contexts with high motivation to process information, and settings in which long-term measures of consumer response are more appropriate, to evaluate media effectiveness. For retailing, further work could explore how media effectiveness changes depending on the type of brand (*i.e.,* private label versus leading or following brands), type of promotional communication (*i.e.,* price versus non-price), and type of channel *(i.e.,* e-commerce, brick and mortar and m-commerce).

Although this study is not intended to provide a definitive answer to the comparative effectiveness of print versus online media, the authors consider this work useful to better assess media effectiveness, particularly for marketers.

Appendix A

Fig. A.1 The online version of the employed store flyer



Appendix B

ITT Analysis

This analysis preserves randomization and yields an unbiased result of the effects of being assigned to a certain treatment, not of receiving the treatment in practice. ITT analysis is of great interest to business because it measures the natural response to marketing and reflects a real-life scenario by allowing noncompliance (*i.e.*, subjects who are assigned to receive a flyer but do not open it) and protocol deviations (Gupta, 2011). Moreover, ITT analysis estimates the treatment effect including a portion of non-compliance that may be due to the treatment itself (Wertz, 1995). For this reason, ITT analysis has been criticized for being too conservative (Fergusson *et al.*, 2002) and justifies subsequent steps in the analytical strategy.

Appendix C

Table C.1 Analytic strategy for the analysis of compliers

Variable	Type of analysis employed
Recall	Negative binomial regression
Recognition	Poisson scaled regression
Ad memory	Negative binomial regression

Number of store visits	Negative binomial regression
Amount spent on flyer-promoted products	ANOVA; Logistic regression in conjunction with ANOVA following Chang and Pocock (2000)
Number of flyer-promoted products purchased	Negative binomial regression

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