SEEKING THE HOLY GRAIL

Is single source measurement the real knight in shining armour for the media industry?

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This paper explores the potential of single source research to measure the association of an advertising campaign by a major U.S. retailer to product purchase behaviours in their stores. In a 2003 Single Source research pilot, the same research panelists scanned their product purchases and carried portable people meters (PPMs) that collected their television and radio media exposure. The paper explores how Single Source research can be used by marketers to better assess their return on media investment, by identifying media that are the best opportunity to reach behaviour-based customer targets, instead of using surrogate targets based on demographic characteristics.

INTRODUCTION

An epic battle is raging between fusion and an array of other data integration techniques to provide the single source databases required by media sellers and buyers to meet evermore sophisticated brand needs. However, a knight in shining armor has appeared on the horizon in the form of Single Source research. New technology has enabled electronic measurement of multiple media and sales results from the same respondents. Consequently the authors believe a new Crusade is about to be fought, one that leverages these new technologies into single source research that will help marketers and media executives achieve their "holy grail": measuring the return on investment of media expenditures based on direct measures.

There have been many papers written and discussion held on fusion and the array of other data integration techniques, debating the most effective method for data integration. Soong and Montigny, 2003 and Walsh and Zack, 2003 are but two recent examples. One leading advertising research committee, the Media Methods Tools & Techniques Council of the ARF, has even initiated a contest to discover the range of practices and possibilities in fusion/data integration techniques.

Despite the industry's attempt to match media use to sales effects, these efforts rely heavily on marketing mix modeling, achieving "more likely" scenarios but not ever reaching the Holy Grail of direct measurement and attribution. Traditionally independent databases, such as television meter data, newspaper surveys or radio surveys, ad/brand awareness surveys and product scanning data, are merged based on similar respondent characteristics to make a "best guess" at the short term impact of advertising on sales results using regression techniques.

Because of the difficulty in linking advertising exposure directly to sales results, leading advertisers are still unsure what portion of their sales results are attributable to media and what portion is attributable to any number of other marketing effects. Because of the instability that results when more than two databases are linked using modeling techniques, understanding the combinations of media and their differential and/or synergistic impact on sales has been directional at best.

This paper presents results from a pilot research study conducted by Arbitron Inc. and Information Resources Inc. in 2003. The research foundation for the pilot studies is Arbitron's Portable People Meter (PPM) system in combination with the IRI national panel. The paper explores how the use of new research technology in combination with existing research technology can create truly Single Source research, where exposure to multiple media (radio, television

and cable television) and sales results (product purchases) are captured from the same research panelists.

Collecting product purchase information from households enables the marketer to base customer segmentation on shopping behaviour. Households that make frequent purchases or have higher spending levels, for example, can be identified as key advertising targets. Collecting media exposure data from persons in these same households enables the marketer to identify media that are the best opportunity to reach the behaviour-based customer targets with advertising, instead of using surrogate targets based on demographic characteristics.

The case study presented here investigated the link between consumer spending at a major U.S. retailer and advertising exposure. In this case study, the retailer's advertising campaign reached their current demographic target (based on traditional age, gender and race/ethnic characteristics). The case study also shows that new Single Source research provides the opportunity for this retailer to more finely target their advertising to reach behaviour-based customer targets, such as frequent or light purchasers.

The paper illustrates the insights achieved using Single Source research that correlate media advertising with a fundamental driver of retailer financial results: product purchases and spending. This paper shows how technology breakthroughs can yield 'real' insights into consumer behaviour and potentially greater accountability and actionability in marketing decision making.

THE PHILADELPHIA (USA) SINGLE SOURCE PILOT

Background on the PPM

The Portable People Meter (PPM) is a research technology that enables multiple media to be measured electronically, passively and simultaneously from the same survey respondent. The PPM "hears" an inaudible code that is embedded in the audio stream of audio and video programming, including television programming, radio programming, and cable network programming. Similarly, an inaudible code can be placed in the audio component of the audio and/or video content that is broadcast by retailers (such as grocery and department store chains) in their stores. This enables the PPM to detect when the survey respondent entered the store and how long he or she visited. The information is time-stamped as it is collected by the PPM.

The PPM system is mailed to panelists, is self-installed, and works with existing household wiring. Survey participants carry a Portable People Meter (PPM), which is a pager-sized device that senses the codes as survey

participants are exposed to media and visit retailers that encode. Participants are asked to carry the meter with them while they're awake. The meter is equipped with a motion sensor that allows Arbitron to monitor when the meter has been carried by the respondent. Participants return the meter to a docking station to recharge it when they go to bed. The codes are transmitted daily to an Arbitron central processing system for tabulation.

Background on IRI National Panel

The 2003 Philadelphia pilot study used a subset of panelists from the Information Resources, Inc. (IRI) Consumer Insights™ National Panel in which Arbitron's PPM was embedded. Information Resources Inc. is a leading global provider of market content, analytic services and business performance solutions to the consumer package goods and retail industries. IRI maintains the largest consumer panel in the U.S. tracking actual purchasing behaviour, documenting who buys what products, how much they buy, when they buy it. The IRI Consumer Insights™ National panel consists of 70,000 scan key devices used to scan bar-coded purchases at home and demographic information (e.g., household income) and other information about their household (e.g., what appliances/electronics they own).

Description of the National Marketing Panel Pilot Studies

Two pilot studies were conducted in the Philadelphia DMA® for a period of eight months starting from May 2003. The purpose of the pilot studies was to assess the feasibility of combining basic PPM radio and television multimedia audience measurement with the collection of other valuable media and marketing information from a "single-source" panel of consumers that might ultimately be expanded to a national panel in the United States.

The two panels established to prototype such a national marketing service were: the PPM/Product Purchase panel; and the PPM/National Marketing panel. Media audiences were collected electronically from both panels using the PPM. The PPM/Product Purchase panel was comprised of respondents from households in the IRI Consumer Insights™ national panel who scanned their product purchases and were asked to use PPM to capture their media and other behaviours. The PPM/National Marketing panel respondents filled out periodic print media and consumer behaviour questionnaires in addition to carrying their PPM. Data collected from the National Marketing Panel pilot studies was designed to include:

o   Passive Panelist Activities: Television viewing (both in and out of home), radio listening, (both in and out of home), Internet use at home, shopping at select retail chains, data integration of "rich" sales databases;

- o Active Panelist Activities: Scanning product purchases, print readership (including magazines, national and local newspapers, and FSIs), consumer surveys.

This paper uses the media audience and product purchase results from the PPM/Product Purchase panel to explore the potential for this type of research to directly measure the correlation between media advertising campaigns and product purchase behaviour. The PPM/National Marketing panel offers the potential for additional rich marketing insights beyond radio and television media and purchase data based on single source that can be explored in future research conferences.

Sample Size and Sampling Techniques

The sample size for each of the Marketing Panel pilot studies was 500 persons age 6 and older in roughly 250 households in the Philadelphia DMA. Panel homes for the PPM/Product Purchase panel were selected at random from active scanning households installed in the Information Resources Plus Consumer Insights™ National panel. Panel homes for the PPM/National Marketing Panel pilot were selected at random from the existing panel homes in the 1,500-person PPM demonstration panel installed in the Philadelphia DMA. Sub-samples from the existing panel were selected in three random-sample replicates using stratification controls based on county, race/ethnicity and employment status. The results are panels that are projectable to the Philadelphia DMA universe.

Panelist Recruitment

The selected PPM households were notified by mail and telephone and invited to join one of the new marketing panels. Each sampled home also received a written description of the new research tasks, the objectives for the research and what would be asked of them if they chose to join the new panel.

Data Collection

The following is a summary of data collection techniques used in the pilot studies.

- o Radio, Broadcast TV, Cable: TV viewing and radio listening data come from the PPM system. The radio and TV data are continuous, not limited to current pre-defined ratings periods.
- o Product Purchase Behaviour: Detailed product purchase information was obtained from IRI Consumer Insights™ panelists in Philadelphia based on IRI technology. In addition, the initial phase of the PPM/Product Purchase

pilot study provided technical assurance that IRI panelists would agree to add the PPM meter to their tasks, continue IRI scanning tasks, and fall within normal compliance ranges for PPM carriage.

o Advertising Schedules: TNS Media Intelligence/CMR and RCS, Inc. AirCheck provided television and radio advertising schedules respectively for selected retailers in the pilot study. If the panelist had listening or viewing exposure during the quarter-hour in which the commercial was broadcast, the panelist was recorded as having been exposed to the commercial.

o Print: Readership data were collected through a self-completed questionnaire from PPM/National Marketing panelists age 12 and older. The initial print questionnaire covered more than 100 national and local magazine titles plus local and national daily and Sunday newspapers, as well as Sunday supplements. A follow-up print questionnaire covered specific-issue magazines and retailer-specific FSIs.

o Visits to Retail Stores: In-store audio broadcasts of selected retailers have been encoded using the same type of inaudible code used for the media outlets. When panelists visit a store with encoded audio, the retailer's code is detected and the store visit is automatically logged into the PPM database. The PPM is able to identify the number of store visits, the time of the visits, and their duration.

o Other Shopping Behaviour: A modified, reduced-in-size Scarborough Research questionnaire was used to collect additional shopping and lifestyle information from the PPM/National Marketing panel panelists. An additional consumer survey questionnaire was also sent to panelists to include product categories not covered in the first consumer questionnaire. The surveys were sent to all panelists age 12 and over. (Scarborough Research is a local-market research company that provides detailed shopping, lifestyle, media and demographics usage information for 75 top markets. Scarborough Research is a joint venture of Arbitron Inc. and VNU, Inc.)

Panelist Incentives

Each panelist receives a basic monthly cash incentive for participating. There are also "bonus" incentives in the form of weekly prize drawings for larger cash awards.

Informed Consent

All households joining the PPM panels have been informed, both orally and in writing, about the specific procedures, research objectives and respondent tasks involved. Participating households receive a detailed "Privacy Pledge"

outlining the steps Arbitron takes to protect the confidentiality of information collected for the pilot. They are also informed of the incentive plan, including the requirements for earning bonus incentives and the opportunities of winning cash prizes.

Panelist Compliance

Compliance with the PPM system continues to be high (as in previous research using PPM) among research panelists. Figure 1 shows the average of median first undock time, last dock time, out-of-dock time and time in motion for in-tab panelists in each of the panels. Panelists are asked to "dock" their PPMs in a recharging unit before they go to bed at night. In-tab panelists in the PPM/Product Purchase panel "dock" their PPMs in the recharging unit at 11:29PM on average. Panelists undock their meters at 7:32AM on average. In-tab panelists in the PPM/Product Purchase panel have their PPMs 'out of dock' approximately 15 hours and 53 minutes per day. They are "in motion" approximately 15 hours and 9 minutes per day.

Figure 1
PANELIST COMPLIANCE

	First Undock	Last Dock	Time Out of Dock Per Day Hr:Min	Time in Motion Per Day Hr:Min
PPM/Product Purchase Panel	7:32AM	11:29PM	15:53	15:09
PPM/National Marketing Panel	7:19AM	11:29PM	16:07	15:30

Average of median monthly first undock time, last dock time, time out of dock, and time in motion.
Philadelphia DMA®, Persons 6+, Sep-Dec 2003.

THE HOLY GRAIL:
LINKING PRODUCT PURCHASES DIRECTLY TO MEDIA USE

Single Source research that obtains media exposure and product purchase behaviours from the same research panelists enables breakthroughs in marketing research in evaluating and refining media strategies. This paper builds a case study using product purchases made by pilot study households at a major U.S. retailer. Product purchases were scanned by PPM/Product Purchase pilot study households throughout the study period. Media exposure (radio, broadcast television and cable television) by persons in these households was collected continuously using the Portable People Meter (PPM).

The results presented here are based on pilot research with relatively small sample sizes. Consequently they should be interpreted as illustrative of the ability of Single Source research to help marketers refine their marketing strategies.

Print (newspaper, magazine, FSI) readership and other marketing information was collected from the second PPM/National Marketing panel pilot study. Time did not permit the results from this panel to be integrated into this paper.

Behaviour-based Retail Shopper Characteristics

The product purchase data can be used to identify behavioural differences between shoppers in households who visit the stores with different shopping frequencies and spending levels. These behavioural differences manifest themselves in distinct demographic profiles as well.

Figure 2 illustrates the demographic profile of Women aged 18 and older in households that made at least one purchase at the retailer and Women aged 18 and older in households with frequent (7 or more times) purchase occasions ("visits"). Women aged 18 and older in households which made a purchase at the retailer generally fit the overall profile of Women aged 18 and older in the market but with a higher concentration in the 55-64 and 65 and older age categories. Women aged 18 and older in households with frequent visits at this retailer are much more likely to be in the 45-54 and 55-64 age categories, indexing at 128 and 171 when compared to the universe of Women 18 and older.

Figure 2
SHOPPERS ARE LIKE WOMEN 18+ POPULATION;
FREQUENT SHOPPERS ARE MORE LIKELY TO BE AGED 45-64

Retail Shoppers vs Frequent Shoppers, Index to Women 18+ population
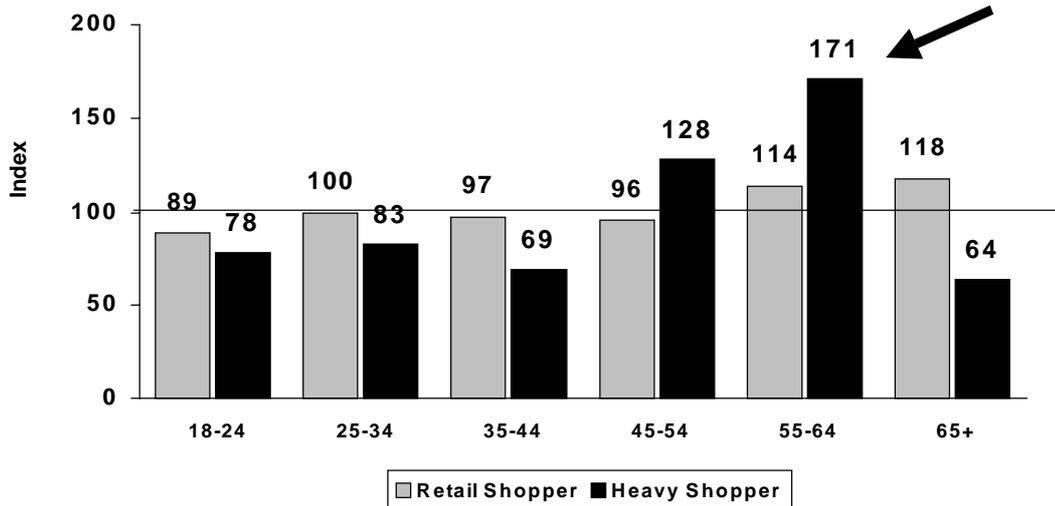
Women 18+ in households that made one or more purchases at retailer, N=131
*Women 18+ in households that made 7 or more purchases at retailer, N=41*
Philadelphia DMA® Mar-Dec 2003

Figure 3 shows similarities and differences based on other demographic characteristics. Women aged 18 and older in households with frequent shopping at the retailer are more likely to be African-American and more likely to subscribe to Premium cable channels, indexing at 139 and 136 respectively when compared to the general population proportion of Women aged 18 and older. (See figure 3.)

Figure 3
FREQUENT SHOPPERS HAVE UNIQUE PROFILE

Retail Shoppers vs Frequent Shoppers, Index to Women 18+ population

Women 18+ in households that made one or more purchases at retailer, N=131
Women 18+ in households that made 7 or more purchases at retailer, N=41
Philadelphia DMA® Mar-Dec 2003

Retail Shopper Product Purchase Patterns

Figure 4 shows purchase occasion ("visits") and spending trends for households that made a purchase at this retailer. Purchase occasions are defined as a day in which at least one product was scanned by the household in the pilot study. For the purposes of the pilot, these data assume that products were scanned on the day they were purchased.

The number of visits and amount spent are indexed to the average visits and spending for the time period for this retailer. From figure 4, visits peaked in early September (when children are returning to school) and late November (when holiday spending begins). Spending peaks during these time periods, with an additional peak in late October.

Figure 4
RETAILER CONSUMER SPENDING AND VISITS
PEAK IN EARLY SEPTEMBER, NOVEMBER
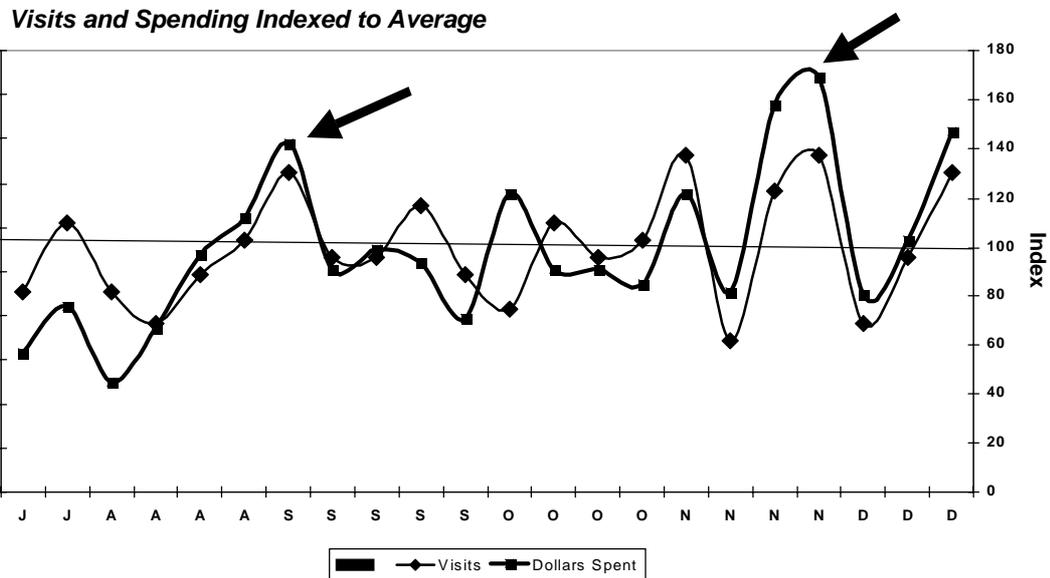
Households that had one or more purchase occasions at retailer ("visits"); Total dollars spent per week by those households (indexed to average visits and spending for the time period). Philadelphia DMA® Jul-Dec 2003

Investigating New Media Opportunities

Without Single Source research, it is difficult for the retailer to craft an advertising campaign that targets customer groups defined by shopping behaviours, such as frequent shoppers or shoppers that spend more per visit with the retailer. Even with extensive modeling, it is difficult without Single Source research to evaluate how well a campaign maximized return on investment in terms of increased visits or increased spending.

In our case study, it appears that revenue for this retailer is driven by frequency of visits rather than spending per visit. Households spend approximately the same amount at this retailer on a per visit basis whether they shop frequently or infrequently. Figure 5 shows indices comparing average spending by households with 1, 2, 3-5 and 6 or more visits during the analysis period. The average spending for each visit level is compared to the average spending per visit overall to create the index. Indices at each visit frequency are close to 100, indicating that households with light visit behaviour (1 and 2 visits) have very similar per-visit spending levels to the more frequent visiting households (3-5 visits and 6 or more visits). A possible strategy for the retailer

in this case may be to target infrequent visiting households and influence them to visit more frequently to drive revenue.

Figure 5
FREQUENT AND INFREQUENT SHOPPERS SPEND
AT SAME LEVEL ON A PER VISIT BASIS
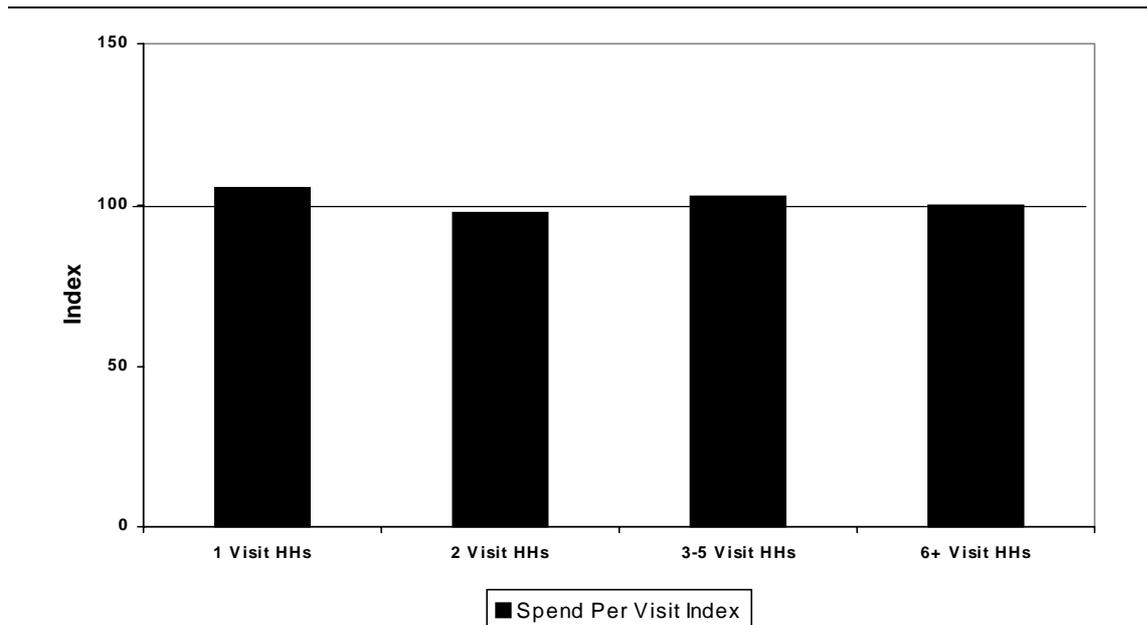
Households that had one or more purchase occasions at retailer ("visits"); Total dollars spent by those households (indexed to average visits and spending for the time period). Philadelphia DMA® Sept-Dec 2003

## Understanding the Correlation between Advertising and Retail Sales Results

One of the most important considerations in establishing the effectiveness of media in reaching customers is measuring the extent to which exposure to advertising correlates with product sales. Ultimately it is the link between advertising exposure and product sales that will convince marketers that the media (and the creative execution) they use is delivering the desired return on investment, and that its contribution to product sales can be optimized.

Many marketers associate advertising spending trends with GRPs achieved in the market. However, the information is typically constructed from disparate data sources. GRPs for each media would be obtained using a different source for each medium; sales results would be obtained from yet another source. The information is typically included on the same graph. The retailer typically uses modeling techniques to assess whether there is a correlation between advertising and sales.

In this case study, panelists were grouped into customer targets: Persons aged 6 and older, Women aged 18 and older, Women aged 18 and older in households that had at least one purchase occasion ("visit") at the retailer, Women aged 18 and older in households that made 1-2, 3-6 and 7 or more purchase occasions at the retailer. GRPs were calculated for each customer target each week of the study September through December 2003. The results are presented in figures 6, 7 and 8.

Figure 6 shows the benefit of single source data in that all of the data presented here is from the same Single Source panelists. The retailer used in this case study bought a high level of GRPs in August which appears to correlate with visit and product sales peaks (indexed) in September. The retailer's advertising campaign delivered higher than average GRPs in late October and early November that appears to have helped sustain November visits and sales (indexed).

Figure 6
GRPs Precede September and November Sales Results
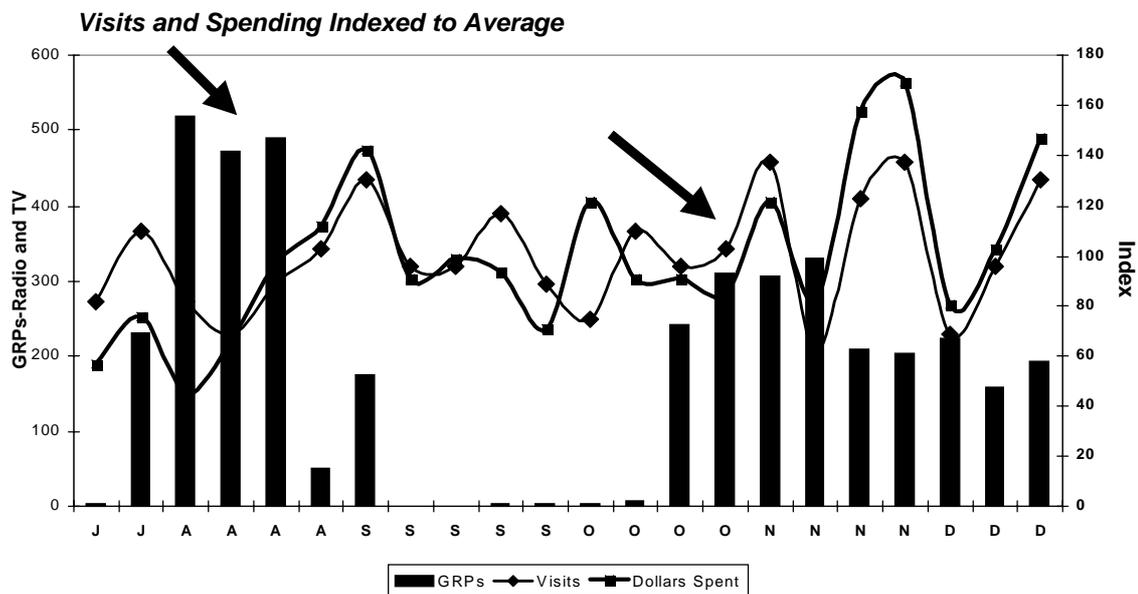
Base: Households that had one or more purchase occasions at retailer ("visits"); total dollars spent per week by those households (indexed to total visits and spending). GRPs, Persons 6+ Total Week, Combined Radio and Television Media. Philadelphia DMA® Jul-Dec 2003

Evaluating a Recent Advertising Campaign: How Well Did It Reach Targets Defined by "Traditional" Age-Gender Descriptors?

For the purposes of creating an illustration of how Single Source data can be used to directly link media exposure to sales results, this case study assumes that the objective of the retailer's advertising campaign is to reach existing customers, those who have made a purchase at the retailer. It is possible that the actual objectives of this retailer were different from the objective assumed above, such as reaching the overall population with a branding message, or pursuing new non-core customer segments. Assuming this retailer wishes to reach core customers (persons in households that have made purchases at the retailer), one would expect the customer target, such as customers in frequent-shopping or infrequent-shopping households, to have heavier advertising exposure levels than customers in non-shopping households.

Currently retailers base their media planning and buying on information that is available to them: simple broad age and gender targets. Therefore, as a first step in measuring the efficacy of the advertising campaign, the effectiveness of the campaign in reaching a broad age-gender target (Women aged 18 and older) was compared to the effectiveness of the campaign in reaching the general population (Persons aged 6 and older). Figure 7 shows GRPs achieved per week by media measured with PPM (radio, broadcast television and cable television) against GRPs achieved per weekby Persons aged 6 and older, Women aged 18 and older, and Women aged 18 and older in households with at least one purchase ("visit") at the retailer.

Figure 7 shows that the retailer was successful in reaching the broad age-gender target, with GRPs for the Women aged 18 and older target 23% higher per week on average than GRPs achieved against Persons aged 6 and older.

Going beyond age-gender targets, Single Source research enables the retailer to investigate the performance of the campaign against customer targets defined by purchase behaviours. GRPs for Women aged 18 and older in households that made a purchase at this retailer were 26% higher per week on average than GRPs achieved against Persons aged 6 and older. However, the advertising campaign is only slightly more effective in reaching Women aged 18 and older in shopping households than Women aged 18 and older overall. GRPs per week on average were 3% higher for Women aged 18 and older in households that made a purchase at this retailer than Women aged 18 and older overall.

This result might be expected given that the retailer did not have the benefit of Single Source data when planning their advertising campaign. Furthermore, the profile of Women aged 18 and older in households that shop at this retailer is similar to the profile of Women 18 and older in the market (as seen in

figures 2 and 3). The Women aged 18 and older target may be a useful surrogate for reaching the general shopping population for this retailer.

Figure 7
CAMPAIGN REACHES WOMEN 18+ AND WOMEN 18+ SHOPPERS

GRPs by Week for Persons 6+, Women 18+ and Women 18+ in households with purchases at retailer
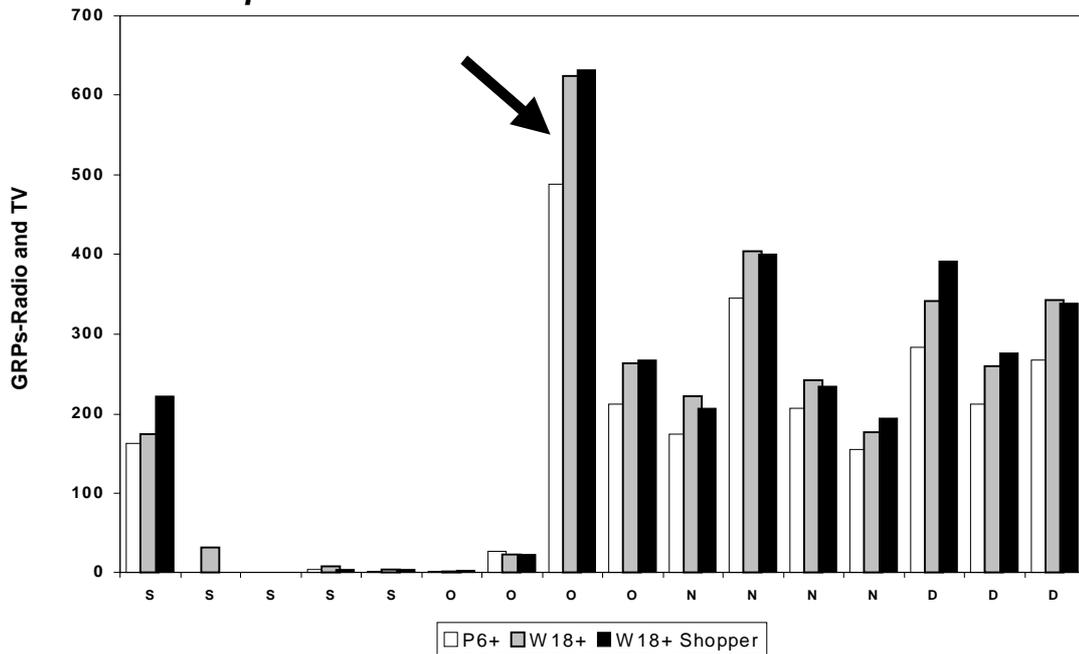
Philadelphia DMA®, Sep-Dec 2003

Evaluating a Recent Advertising Campaign: How Well Did It Reach Targets Defined by Purchase Behaviours?

Single Source data has the potential to enable marketers to identify customer targets based on purchase behaviours and evaluate to what extent the advertising campaign reaches these behaviour-based customer targets.

This case study assumes that the advertising campaign is constructed to reach existing customers, customers that have made a purchase at the retailer. It is useful to refine the analysis to evaluate the efficacy of the campaign according to different types of purchase behaviours. Figure 8 shows the performance of the campaign relative to shopping frequency behaviours, comparing GRPs achieved among Women aged 18 and older in households that visited 1-2 times, 3-6 times and 7 or more times during the analysis period.

The figure shows that the campaign performed better among Women aged 18 and older in infrequent (1-2) visit households, particularly in the third week in

October when the highest GRP levels were attained by the campaign. During this week, GRPs achieved against Women aged 18 and older in infrequent (1-2) visit households was 45% higher than GRPs achieved against Women aged 18 and older in the most frequent shopping households (7 or more visits). However, overall, GRPs achieved among Women aged 18 and older in infrequent (1-2) visit households was 7% higher than GRPs achieved among Women aged 18 and older in frequent (7 or more) visit households.

If the objective of the advertising campaign was to target infrequent shoppers, to entice them to shop more frequently, the campaign would have been moderately successful in doing this. However, the results are somewhat inconsistent, and further refinement of the campaign to make sure it achieves its goals would be possible with Single Source data.

Figure 8
SINGLE SOURCE CAN BE USED TO TARGET
FREQUENT SHOPPERS MORE EFFECTIVELY

GRPs by Week for Women 18+ in households with visits at retailer
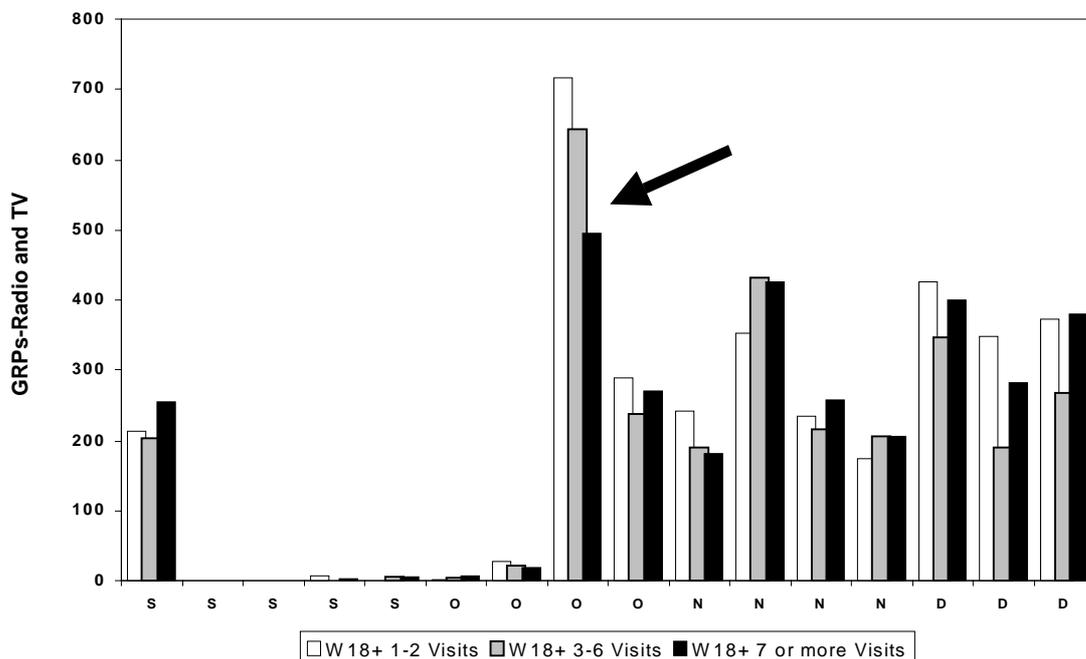

Philadelphia DMA®, Sep-Dec 2003

Refining the Advertising Strategy:
Multi-Media Profile of Retailer Shoppers

The broadcast television, radio and cable television media data obtained from the PPM can be used to evaluate overall media patterns among different shopper targets. Figure 9 shows that the radio and cable television usage tercile profile among Women aged 18 and older in households that made a purchase at this retailer is generally in-line with usage patterns of the population. Figure 9 shows that 34% are heavy radio users which compare to 33% of the general population. Women aged 18 and older in households that made a purchase at this retailer are heavier broadcast television users, with 43% of shoppers classified as heavy broadcast television viewers. In the general population approximately 33% are classified as 'heavy' in each media category.

Figure 9
RETAILER SHOPPERS ARE HEAVY BROADCAST TV USERS

How to read: 43% of women 18+ in households with purchase occasion "visits" at the retailer during the time period are "heavy" broadcast TV viewers.
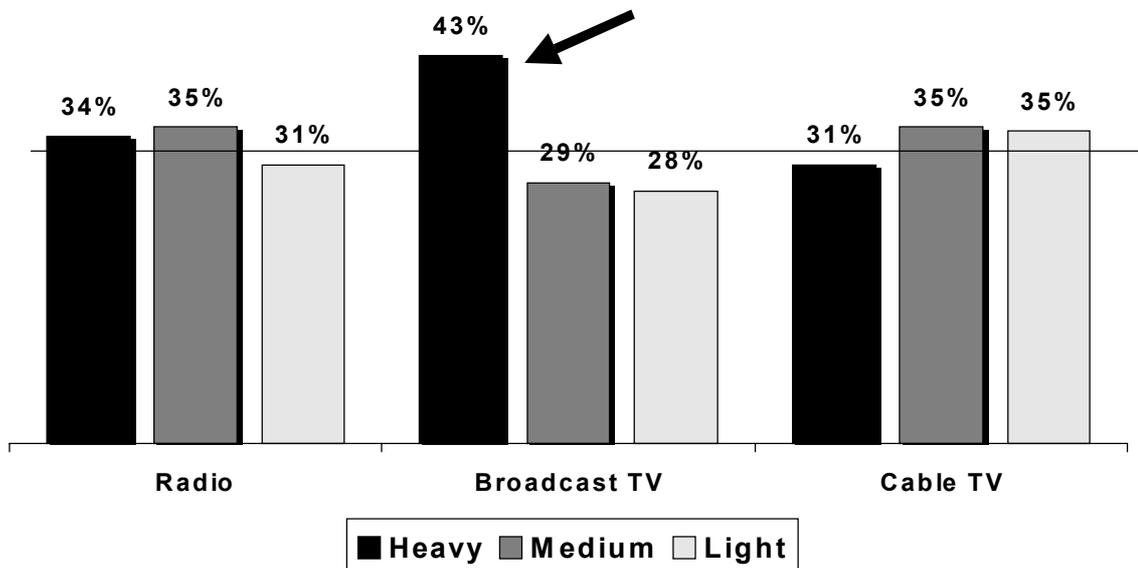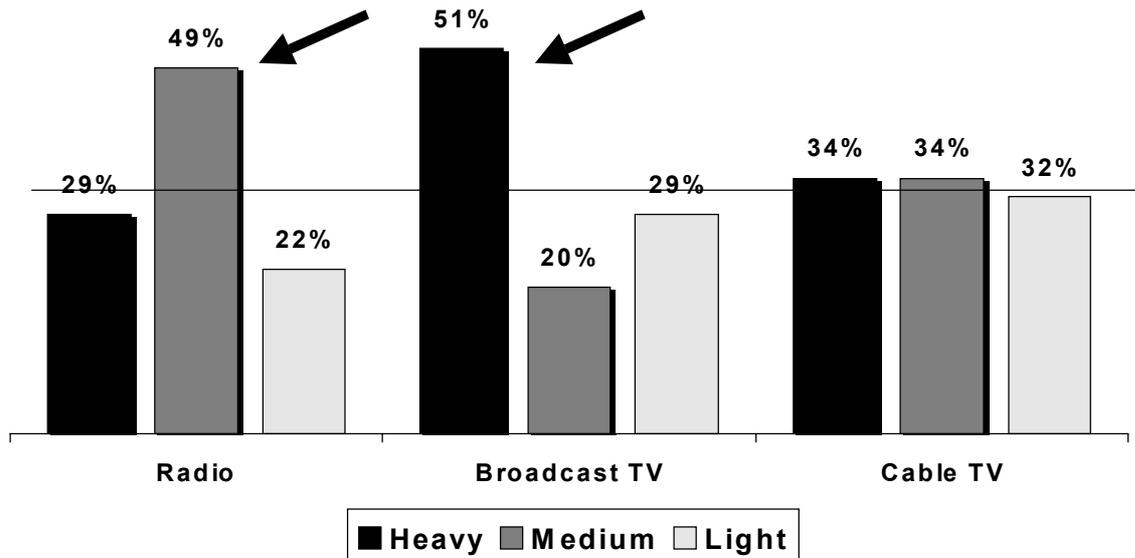

Philadelphia DMA®, Oct 2003 Media Use, Women 18+ in households that visited retailer

Taking this a step further, figure 10 shows that Women aged 18 and older in frequent shopper households are more likely to be moderate radio listeners (49%) and much more likely to be heavy television viewers (51%) than the general population.

Figure 10
FREQUENT SHOPPERS ARE MEDIUM RADIO
AND HEAVY BROADCAST TV USERS

How to read: 49% of women 18+ in households with 7+ purchase occasion "visits" in time period are medium radio listeners


Philadelphia DMA®, Oct 2003 Media Use, Women 18+ in households that visited retailer

Going beyond overall media analysis, marketers can use inter-media comparisons to investigate the best media opportunities to reach frequent shoppers or brand purchasers during the "media day". Figure 11 graphs how Women aged 18 and older use broadcast television, cable television and radio media throughout the day (People Using Measured Media - PUMMs). The bar chart below shows how listening and viewing on an hour by hour basis (indexed), for Women aged 18 and older in frequent shopper households compares to listening and viewing on an hour by hour basis among Women aged 18 and older. The charts demonstrate that frequent shoppers are more likely to use radio in the morning (and late night), more likely to use broadcast television in the early evening, and more likely to use cable television in the midday.

Figure 11
HEAVY SHOPPERS USE MORE MORNING RADIO;
MORE BROADCAST TV IN LATE AFTERNOON

Women 18+ in households with 7 or more visits, Persons Using Measured Media and Index to PUMM for Total Women 18+
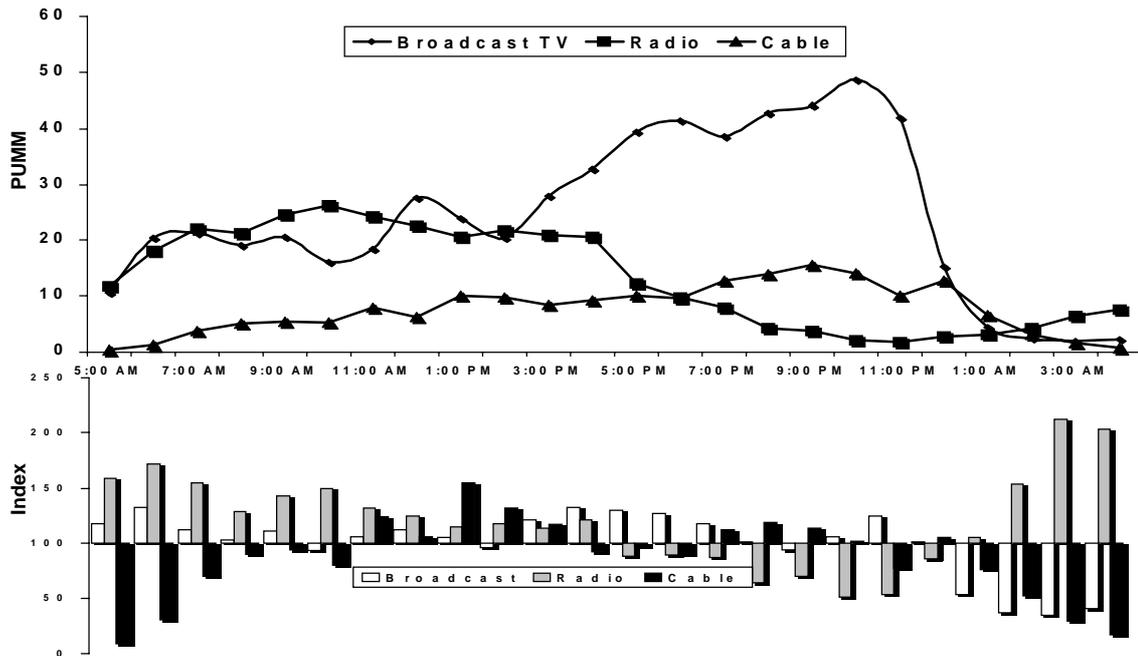
Philadelphia DMA® October 2003

Going deeper into these data in future full-scale panel analyses, it is possible for marketers to refine the media plan/buy at the daypart, program, station, network or cable level based on the strongest opportunities to reach frequent shoppers and other customer or competitive shopping segments depending on the strategy. Understanding the actual advertising effects on competitor shopping or competitive advertising effects on 'your' shopping are a unique opportunity offered via this kind of single source approach. Through continuous Single Source data, marketers can refine their media plans to reach critical behaviour-based customer targets based on 'real' relationships and uncover significant opportunities to increase ROI.

SUMMARY AND CONCLUSIONS

The PPM/Product Purchase panel pilot illustrates a research framework to attain multi-media measurement on a single source basis to create a more direct link between media exposure and sales effects. The case study presented here uses the results of a 2003 pilot study to identify customers of a major U.S. retail chain based on product purchase behaviours. The exposure of each behaviour-based customer segment to radio and television media advertising used by the retailer was measured in the pilot to create a more direct link between advertising exposure and sales results, a critical input into media planning. The potential to add other media with minimal burden on the respondent is also revealed in a second pilot study. With larger samples analysis can be executed at the media vehicle level which would provide the media executive with significant opportunities to leverage their clients' investments.

The results illustrate that exposure to advertising by behaviour-based customer targets can be quantified and used to evaluate the efficacy of media advertising in achieving sales goals. Single Source research can be used to more effectively measure campaign results and refine future advertising strategies to more effectively reach behaviour-based customer targets.

This and subsequent investigations will help us understand the gains in more directly measuring the sales effects of the advertiser's media and marketing mix. The authors hypothesize that the gains could be profound and wide ranging. As we continue to explore the possibilities of this new research, we find that data from a single-source multimedia panel have the potential to go beyond existing modeling, fusion and individually measured media to create a direct and continuous link between a brand's media exposure and purchase behaviour.

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