Silver Screen ROI:
Modeling Techniques for In-Theater Advertising

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I. Introduction

Marketing mix modeling (MMM) has become the industry standard for measuring marketing return on investment. With its roots in the academic marketing science literature from the 1960s and 1970s, MMM was first commercialized in the consumer packaged goods industry in the late 1980s by such companies as Media Marketing Assessment (MMA), which was founded in 1989. The collection of retail scanner data by A. C. Nielsen and Information Resources, Inc. made it possible to link sales performance to such marketing activities as pricing, trade promotion, advertising, and other consumer promotions through the application of regression-based models.

The usage of these models by marketing researchers and brand managers spread throughout other industries in the 1990s, as pressure mounted on marketers to become more accountable for their spending. By the beginning of the 21st century, MMM was being employed across all industries where data was available on marketing performance and marketing activities. Today, these models are widely used by companies in the automotive, financial services, pharmaceuticals, retail, and travel verticals. MMM is not just for CPGs.

With the advent of Web 2.0 in the 1990s and the proliferation of digital media (paid, owned, and earned) in the 21st century, the current state of marketing mix models has increasingly been called into question (see Poltrack, 2013, Spaeth and Sylvester, 2013). However digital media are not the only marketing activities which suffer in traditional models. Over the past few years, studies have been initiated on behalf of magazine publishers, out-of-home advertisers, and providers of in-store marketing programs.

The Cinema Advertising Council (CAC) targeted the inclusion of cinema advertising in marketing mix models as their number one research priority in 2012. Cinema advertising is often not included in marketing mix models. When it is included, the CAC believes that its impact is under-reported because of the way the results are interpreted in these models. This study summarizes research conducted as part of that initiative by the CAC to support the effectiveness of in-theater advertising.

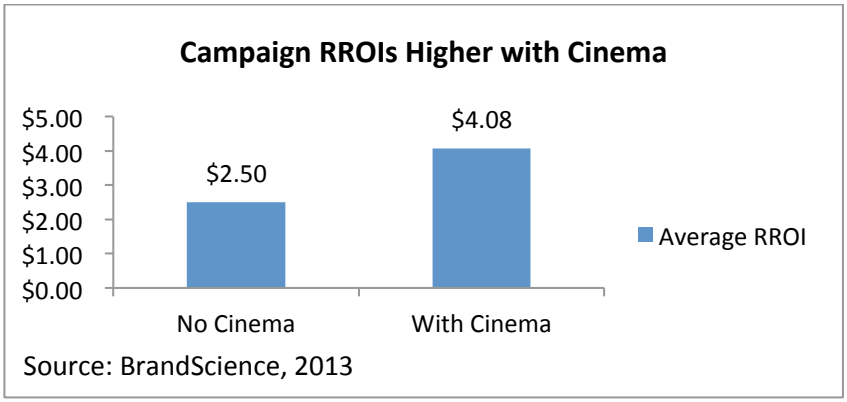
II. Meta-Analysis

The Cinema Advertising Council engaged in two projects in 2012-2013 with BrandScience (an econometric modeling group within Omnicom Group) which had presented results of a European study on the effectiveness of cinema advertising effectiveness to the Screen Advertising World Association in April 2012. The European study, based on numerous econometric analyses of real campaigns, revealed cinema as not only increasing overall campaign ROI, but also specifically contributing to a higher ROI for TV due to synergistic effects. As a follow-up to this study, the CAC worked with BrandScience on a study specific to the US market. BrandScience conducted a meta-analysis of published marketing effectiveness cases from North America, which were sourced from the World Advertising Research Council, the OMD network, and CAC members. The vast majority (68 of 74) of these cases came from the WARC database.

These case studies covered services (43), as well as packaged (29) and luxury (2) goods. In this analysis, sales increases were highest for those brands spending low or high amounts on cinema. This suggests that **cinema works well as a support to other media** but also as a main medium. Sales uplifts for CPG brands were significantly higher (almost 200%), when cinema spending was high

In the second BrandScience study, which was completed in 2013, 41 additional WARC case studies were identified for campaigns which **did not include cinema** as part of the media mix. In order to make the non-cinema studies comparable to the cinema results detailed above, brands were chosen to match industry sector and budget as closely as possible. As such, the 41 additional case studies covered both CPG and service brands. While the proportion of budget spent on TV was very similar across the two sets of case studies, the proportions spent on online and print were different. **The average sales increase for brands in the cinema dataset was higher at 80% than that for brands in the non-cinema dataset at 67%.** In addition, BrandScience compared average Revenue ROI (RROI) across the two data sets. The average RROI was found to be higher at $4.08 for brands including cinema, when compared to brands' not including cinema with an RROI of $2.50 (See Figure 1). One plausible conclusion for these findings is that cinema worked well as an addition to the media mix for these brands.

Figure 1.

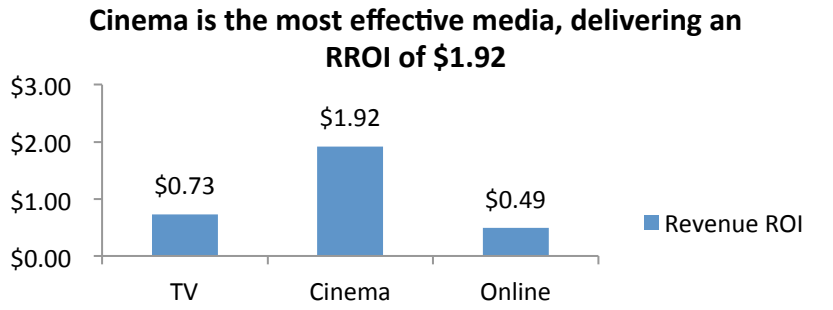


III. Channel Allocation Optimization

To more clearly illustrate the ROI value of Cinema, BrandScience utilized their channel allocation tool to analyze an October 2011 campaign for a men's deodorant brand that included Cinema (NCM Media Networks and Screenvision) as part of its media mix. This tool is based on thousands of econometric model results, which BrandScience has gathered, and allows the user to both optimize the total budget across a given media mix and to derive the likely performance of each medium. For this particular campaign, cinema accounted for 13% of total media spend. Based on the results from the BrandScience channel planning tool, cinema has a Revenue ROI over 2.5 times that of TV at $1.92 for cinema and $0.73 for television (See Figure 2). This is supported by the evidence BrandScience has developed across many markets and marketing mix studies for the strong sales performance of cinema in the packaged goods category.

Figure 2.

Media	Spend (000)	Revenue Return (000)	Revenue ROI
TV	3.23	2.35	0.73
Cinema	**0.49**	**0.94**	**1.92**
Online	0.10	0.05	0.49
Total	3.82	3.34	0.87



Source: BrandScience, 2013

IV. Model 1: Men's Personal Care

In order to further explore the impact of cinema advertising on sales performance in the CPG category, CAC employed the Marketing Productivity Group in 2013 to conduct two marketing mix modeling analyses. In the first analysis, models were estimated for the same men's deodorant brand examined above for three separate markets: New York, Atlanta, and Minneapolis. These markets were chosen based on the brand development indices (BDI) for the particular product to include a high-BDI market (New York), a medium-BDI market (Atlanta), and a low-BDI market (Minneapolis). The model timeframe covered the period analyzed by BrandScience above. Of the 19.5% of volume driven by media during the in-theater campaign, cinema drove almost 9% of sales volume in New York (See Figure 3). Over the model timeframe, the sales volume generated by this cinema campaign, which only ran for a month, was only slightly less than that due to television at 9.7%. The volume due to cinema in the Atlanta market was approximately 5%, while the campaign was running. This is slightly more than half the volume due to TV in that market at 9%. The results for Minneapolis fell in line with the ordering of brand development. While no significant impact was found for cinema advertising in this low-BDI market, only 3.5% of the men's deodorant's volume in Minneapolis was due to television advertising. Sales volume in Minneapolis was much more highly driven by in-store promotions, typically price-related, than in the other two markets. The lack of a significant impact for cinema advertising detected in Minneapolis was potentially due to the fact that this market had the lowest level of cinema impressions (less than 5% local market reach). This analysis provided additional evidence that cinema can be a very effective part of the media mix, especially in markets where the brand is popular. The exercise also revealed that cinema market penetration is a variable that needs to be considered when modeling cinema.

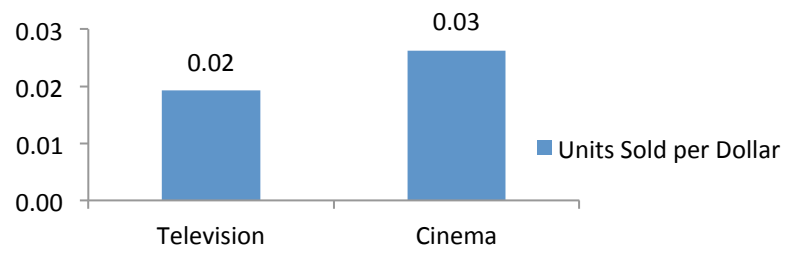
Figure 3.

Market	BDI	% Sales Volume Driven by Cinema	Cinema Impressions
New York	High	9%	2,125,954
Atlanta	Medium	5%	551,821
Minneapolis	Low	0%	340,926

V. Model 2: Cereal Brand

The final analysis to be covered in this report was conducted by MPG on a cereal brand. This model was estimated nationally across 153 grocery accounts over a time period to include an eight-week cinema campaign. As with the Men's Deodorant campaign, this campaign ran on both NCM and Screenvision screens. Across the average grocery account, very similar sales elasticities were observed for both cinema and television advertising. The sales elasticity reports the percentage change in volume generated by a one per cent change in dollars spent on cinema or TV advertising. This sales elasticity reflects the response over the entire spending range. The analysis demonstrated that every ad dollar invested in cinema resulted in 1.37 times the incremental boxes generated by a dollar in TV (See Figure 4). More importantly, the next dollar spent in cinema advertising would provide 18 times the impact on marginal sales revenue as that for the next dollar spent on television (See Figure 5). This points to one shortcoming of traditional mix models in that they tend to look at average return across historical spending range as opposed to return from next dollar spent. It is far more important to look at marginal results to inform marketing resource allocation. However, most marketing mix models fail to do so. The marginal sales revenue in this case study clearly reflects that this brand was under spending on cinema advertising relative to television spend.

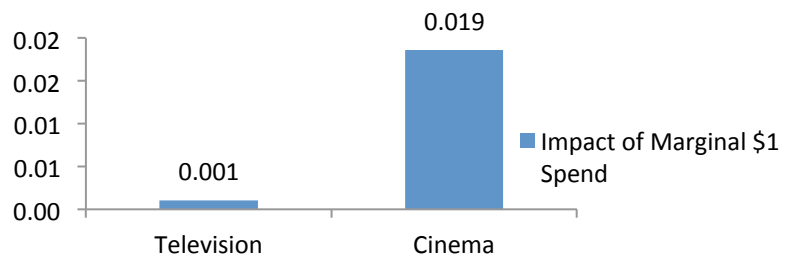
Figure 4.



Source: MPG, 2013

On average across the grocery accounts, every ad dollar spent in Cinema vs. TV resulted in 1.37 times the incremental boxes in sales volume.

Figure 5.



Source: MPG, 2013

On average across the modeled grocery accounts, the next dollar spent in cinema advertising would provide impact on marginal sales revenue that is 18x that of TV*.

**Conditional on exposure and similar elasticity*

VI. Conclusions and Further Considerations

Cinema advertising can be as or even more effective than television advertising. However, this requires that proper measurement techniques be employed in marketing mix models to quantify the impact of cinema relative to other media channels and that all relevant variables (i.e. market penetration, length/breadth of schedule) are taken into consideration. It is also important to note that not being able to get a read on a media vendor/channel in a mix model is not the same as saying that it did not work. There is an opportunity for advertisers and their marketing mix modeling suppliers to work more closely with the CAC and its members to ensure the proper treatment of cinema advertising in these models. In addition, proper interpretation of results from these models is necessary. As opposed to evaluating the return on advertising vehicles by looking at average historical return, marketers should compare returns from various marketing activities in terms of the incremental revenue or profit which would be generated by the next dollar spent. The research reported above demonstrates the effectiveness of cinema advertising, when it is properly measured and when results are properly reported and interpreted.

Looking ahead, the CAC will continue to explore the evaluation of cinema through the various avenues of ROI measurement. As a follow up to the analyses cited within this paper, next steps include models based on media weight as well as inclusion of additional media aside from television. Further analysis needs to be done on the impact of length of schedule on visibility within market mix models. Lastly, the CAC hopes to uncover new insights about how cinema advertising fits into attribution models and explore areas such as impact on social activity and search. Better understanding of the synergistic effects between cinema and other media will paint a much clearer picture of the “true” ROI of cinema advertising.