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A Hierarchical Marketing Communications Model of Online and Offline Media Synergies

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Abstract

We propose a new hierarchical model of online and offline advertising. This model incorporates within-media synergies and cross-media synergies and allows higher-order interactions among various media. We derive the optimal spending on each medium and the optimal total budget. We also develop three hypotheses on the effects of within- and across-media synergies on both the total budget and its allocation. We estimate media effectiveness as well as the within- and cross-media synergies of offline (television, print, and radio) and online (banners and search) ads using market data for a car brand. We show that both types of synergies —within-media (i.e., intra-offline) and cross-media (online-offline)— exist. We show how within- and cross-media synergies boost the total media budget and online spending due to synergies of the online media with various offline media.

Keywords: Optimal allocation; Advertising; Online media; Synergy; Marketing communications budget

Introduction

Online and interactive marketing communication spending continues to grow rapidly (e.g., Shankar and Hollinger 2007). In 2007, U.S. companies spent $10.4 and $7.7 billion on search marketing and display advertising, respectively, and together with other forms of online advertising such as email marketing, the total online media outlay was $24.4 billion (*Advertising Age* 2007). This amount represents approximately 8% of the total media spending, which includes all other offline media (e.g., television, radio, print). Online media spending is expected to more than double in 5 years (i.e., $60 billion by 2012) and to consume 18% of the total media expenditures (*Advertising Age* 2007; Shankar and Hollinger 2007). Indeed, new media comprising online, mobile, and social media are emerging as the growth area for advertising for manufacturers and retailers (Ailawadi et al. 2009).

The surge in online marketing spending and large offline media expenditures raises important questions for managers. How much should managers allocate to online media given their spending in all other media? Do online media interact with offline media to influence marketing outcomes such as brand consideration and brand sales? If so, how?

Previous studies on marketing resource allocation reveal important insights on the effects of within-media synergies on the overall budget and its allocation (e.g., Naik 2007; Naik and Raman 2003; Shankar 1997, 2008; Prasad and Sethi 2009). Of particular interest is synergy, which emerges when the combined effect of two media exceeds their individual effects on the outcome measure (Naik 2007). Naik and Raman (2003) show that, when within-media synergy exists, managers should increase the total media budget and allocate *more* than fair share to the *less* effective medium. That is, managers should spend disproportionately more on the less effective medium because it reinforces the more effective medium. However, they examined only vehicles within-offline media, which could potentially have synergies with online media. That is, there could be *across* online–offline media synergy in addition to within-offline media synergies. For example, online media may enhance not

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just the effectiveness of offline media such as television or print, but also the synergy between those offline media components, television and print.

To understand this phenomenon and test it empirically, we develop a hierarchical marketing communications model of online and offline media synergies. The model captures within-media synergies and across-media synergies and allows for higher-order interactions among various media. We analytically derive the normative spending rules for the model and develop hypotheses on the effects of within- and cross-media synergies on both the total budget and its allocation.

We test the hypotheses from the theoretical model using data from a car company, which advertises on both the online and offline media to keep its brand in consumers' consideration set. The company evaluates the consideration outcomes using offline visits to dealer showrooms and online visits to configure cars on their website. We establish that *both types* of synergies, namely, within-media (i.e., intra-offline) and cross-media (online–offline) synergies exist. In other words, we show that online advertising amplifies the effectiveness and synergies of offline media (television, print, newspapers, and magazines) in increasing the online car configurator visits. To our knowledge, our study is the first one to document this substantive finding, providing evidence to support the hierarchical model of online–offline advertising.

From a managerial standpoint, we address the important issue of the sources of growth in online media spending. The current use of online media is driven by managers' beliefs that it costs less than offline media (Barwise and Farley 2005). Its continued use, however, depends on demonstrating its effectiveness in achieving measurable goals such as awareness, consideration, or sales. Consequently, advocates of online advertising may exaggerate its effectiveness or understate the effectiveness of offline media (e.g., statements such as people zip television ads or direct mailings contain junk). Although online spending can grow by adopting such a competitive orientation to secure resources at the expense of the offline media, we identify alternate sources of growth: within- and cross-media synergies. Our results show how within- and cross-media synergies increase the brand's total media budget. Thus, by eschewing competitive orientation, online spending can grow solely due to the collaborative orientation, which involves building synergies with various offline media.

Our proposed model extends Naik and Raman (2003) by distinguishing between two types (within-media and cross-media) of synergies and advancing new theoretical results. In particular, unlike Naik and Raman (2003), our model includes three-way and higher-order interactions among different media types.

We organize the rest of the paper as follows. We first review the extant literature to develop the theoretical basis for the hierarchical model. We next formulate the hierarchical model of online–offline advertising and derive the new propositions and hypotheses. Subsequently, we describe the data, estimate the proposed model and empirically validate the hypotheses. Finally, we discuss the managerial implications and conclude by summarizing the contributions.

Related literature

We review relevant studies on consumer decision process, offline and online media effectiveness, media synergy effects, and multimedia allocation.

Consumer decision process

Consumers' buying process involves distinct stages such as awareness, consideration, and purchase (e.g., Lavidge and Steiner 1961). In the auto industry, according to J.D. Power and Associates (2004), 64% of the new car buyers become aware of the features and benefits by obtaining information online on cars, even though they purchase their car from an offline dealership. This finding implies that if car manufacturers "do not become part of the consideration sets of customers who are looking for information online, those customers may not show up at dealerships to test drive or purchase" (Rangaswamy and van Bruggen 2005). Consequently, car manufacturers aim to increase both online and offline site traffic. Ilfeld and Winer (2002) show that offline advertising increases website visitation by influencing consumer awareness, while online advertising directly leads to increased website traffic. Therefore, we use both the local dealer visits (offline) and car configurator visits (online) as the dependent variables for car-buying consideration in our model. Based on both measures of consideration, we will estimate the impact of offline advertising, online advertising, and media synergy.

Offline media effectiveness

Offline advertising consists of media spending on television, newspapers, magazines, radio, and direct mail. Several studies in the extant literature document the effectiveness of offline advertising (see Tellis and Ambler 2007). Because offline media, like direct mail, generate website visitors, Bellizzi (2000) urges online businesses to not rely solely on online advertising to create awareness and site visitation. In the context of political campaign ads, Lariscy and Tinkham (1996) find that (i) increasing media allocation to direct mail enhances the share of vote for non-incumbents and (ii) using multimedia campaign via television, newspaper, outdoor, printed literature, and direct mail outperforms a single-media campaign. Hence, we include offline ad spending on mass media (namely, television, radio, newspapers, and magazines) and individually-targeted media (namely, unaddressed and personally addressed direct mail) as the independent variables in our model.

Online media effectiveness

When consumers use online media, they substitute traditional offline search by Internet-based search (Klein and Ford 2003). Besides facilitating the low-cost search, online media also provide display advertising via banners. Banner advertising presents visual and textual information about the brand, occupies approximately 10% of the computer monitor's area, and allows consumers to access the company's website when clicked