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**A SCENARIO-BASED SYSTEM FOR ADVERTISING DESIGN:
EXTENDING THE DESTINATION ADVERTISING RESPONSE (DAR) MODEL**

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**A Scenario-Based System For Advertising Design:
Extending The Destination Advertising Response (DAR) Model**

Abstract

Tourism destination marketing is an effective marketing tool for increasing destination visitation and tourist spending that should be understood as a dynamic process wherein the act of advertising changes market structures, which in turn, lead to changes in advertising performance. As such, this study proposes a scenario-based system for advertising design which can be used to forecast the impact of changes in market structure. The system includes three main components: demand estimation, evaluation of destination advertising, and simulation of scenario-based market conditions. The proposed system estimates a demand function and the impact of advertising on traveler's behaviors (e.g., expenditure, length of stay) which can then be used in simulation analysis to identify potential advertising strategies. Therefore, this system ultimately improves destination competitiveness by enabling DMOs to design significantly more effective marketing strategies.

Keywords: Destination advertising, scenario, simulation, tourism marketing

Introduction

Tourism destination advertising is not only an effective marketing strategy for increasing the number of visitors to a destination, it is also recognized as a means for enhancing travelers' experiences and generating increased value within the destination (i.e., expenditure, length of stay) (Pratt et al. 2010; Stienmetz and Fesenmaier 2013). Destination advertising eventually results in changes in marketplaces, market comparativeness, and market structures – all of which closely relate to tourism demand and the characteristics of incoming travelers (e.g., Dickson and Ginter 1987; Johnson and Myatt 2006; Piga 1998). In particular, as competition among destinations increases, destination marketing becomes even more difficult and uncertain because travelers easily gather information through various information channels (e.g. mobile, social media) and have lots of possible destination choices. Situational changes (e.g., fuel prices, season) also affect travelers' intention to visit a destination, the way of traveling to the destination, and spatial patterns of traveling to and/or within the destination (e.g., Connell, Page, and Meyer 2015; Oh and William 2011). This complexity of the marketplace and, in turn, advertising response (including the process of decision making), implies that destination marketing should be understood as a dynamic process wherein the act of advertising changes market structures, which in turn, lead to changes in advertising performance.

Despite the dynamic characteristics of destination marketing, a review of the tourism literature finds that advertising effectiveness research has assumed a static external environment while estimating the effect of destination advertising on destination decisions and expenditures at the destination (e.g., Kim, Hwang, and Fesenmaier 2005; Woodside 2010). For example, recent advances in destination marketing research include the development of the destination advertising response (DAR) model proposed by Park et al (2013) and validated by Stienmetz,

Maxcy, and Fesenmaier (2015). The DAR model incorporates several trip-related decisions within the advertising evaluation framework, measures advertisements' contributions to travelers' overall expenditures, and has been extended to include the effects of advertising channel, the timing of trip decisions, physical distance from origin to destination, the effect of prior experiences, and potential outcomes of destination advertising (i.e. trip structure changes) (Stienmetz and Fesenmaier 2014; Choe, Stienmetz, and Fesenmaier 2013, 2014a, 2014b). However, while the DAR model's facets-based approach to advertising response recognizes the hierarchical and inter-related nature of travel decisions, it still does not consider the dynamic characteristics of tourism flows and changes in market structure and their potential impact on advertising performance.

One approach to addressing the dynamic nature of destination marketing is to apply scenario-based evaluation methods for advertising design. In tourism, scenario-based evaluation has been adapted to understand the effects of a specific event (e.g., social change, demographic change, transportation, terrorism, etc.) on the tourism industry and to develop appropriate destination planning policies (for a detailed review, see Gossling and Scott 2012). Use of scenario-based evaluation potentially provides benefits in understanding uncertainty, unpredictability, and instability of the environment (Malaska, Malmivirta, and Meristo 1984). As such, this method helps DMOs to anticipate possible market changes, improve their flexibility, and increase innovation in terms of developing new markets (Hiltunen 2009).

With these advantages in mind, this study extends earlier advertising studies by developing the foundation for a scenario-based system for advertising design which can then be used to forecast the impact of changes in market structure within a dynamic system. To do this, this study first

proposes the overall framework of a scenario-based advertisement evaluation and then illustrates use of the system through a case study.

A System for Scenario-Based Advertising Design

The overall purpose of the Scenario-Based Advertising Design (SBAD) system is to enable DMOs to evaluate their advertising in response to changes in market structure and external situations. In this regard, the proposed framework differs from traditional advertising response models in that an overall demand function is first estimated so as to model market structure which then ‘informs’ the remaining destination advertising evaluation components (see Figure 1). The following briefly describes each of these subsystems.

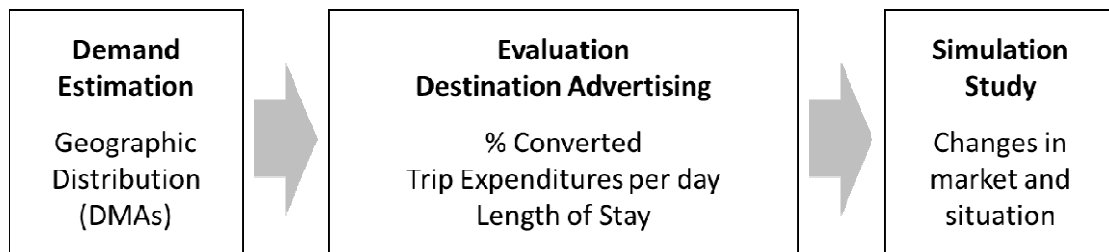


Figure 1. A Scenario-Based Advertising Design Strategy

Step 1. Demand estimation

A gravity model is first applied to estimate tourism demand based on Designated Market Areas (DMAs), which describe geographic areas of television markets and is a common tool used by marketers (Nielsen Media Research 2014) in defining target markets. The gravity model (see Equation 1) is used to estimate the tourism flow (i.e., the number of inquiries) from an origin to a destination based on various characteristics of both the origin and destination and the distance between those two places (Mayo, Jarvis, and Xander 1988; Morley, Rossello, and Santana-

Gallego 2014). In this model, characteristics of each DMA include total population, median household income, a current market proportion, and percentage of people in a target market.

$$\ln Demand_{ij} = \alpha + \beta \ln Char_i + \lambda \ln Char_j + \xi \ln Distance_{ij} + \varepsilon_{ij} \quad \text{Eq. 1}$$

Step 2. Evaluating destination advertising

The second stage of SBAD is to evaluate destination advertising and estimate its impact on destination value creation (i.e. visitor experiences and expenditures). As such, this step in the SBAD strategy includes three separate equations to predict travelers' behavior: 1. Whether or not they visited the destination (Equation 2); 2. Trip expenditures per day (Equation 3); and, 3. Length of stay (Equation 4). The equations are derived from previous literature on tourism advertising (e.g., Stienmetz, Maxcy, and Fesenmaier 2015) and the determinants of expenditures and length of stay (e.g., Brida and Scuderi 2013; Thrane 2014a, 2014b).

$$Destination\ Visit = \alpha + \beta_i\ trip\ char + \beta_j\ individual\ char + \varepsilon_{ij} \quad \text{Eq. 2}$$

$$\ln(Spending\ per\ day) = \alpha + \beta_i\ trip\ char + \beta_j\ individual\ char + \beta_k\ ads\ response + \varepsilon_{ij} \quad \text{Eq. 3}$$

$$\ln(length\ of\ stay) = \alpha + \beta_i\ trip\ char + \beta_j\ individual\ char + \beta_k\ ads\ response + \varepsilon_{ij} \quad \text{Eq. 4}$$

Step 3. Scenario-based Simulation

Behavior, experiences, and advertisement response typically differ based on who travelers are, when they visit, and where they are from (Choe, Stienmetz, and Fesenmaier 2013, 2014a, 2014b; Stienmetz and Fesenmaier 2013). Thus, the third step of SBAD is to simulate changes in

destination value creation based on changes to the flows of incoming travelers and changes in the effectiveness of destination advertising. In particular, the system first presents to the user current demand and identifies the relative importance of market characteristics in shaping this demand. The system then invites the user to identify potential target markets defined by geography, demographics, trip characteristics, and channels. Last, the system then provides forecasts describing conversion rates, length of stay, visitor satisfaction, and expenditures for the scenario described in Step 2 of the process. Figure 2 briefly describes the functions of a scenario-based system for advertising design.

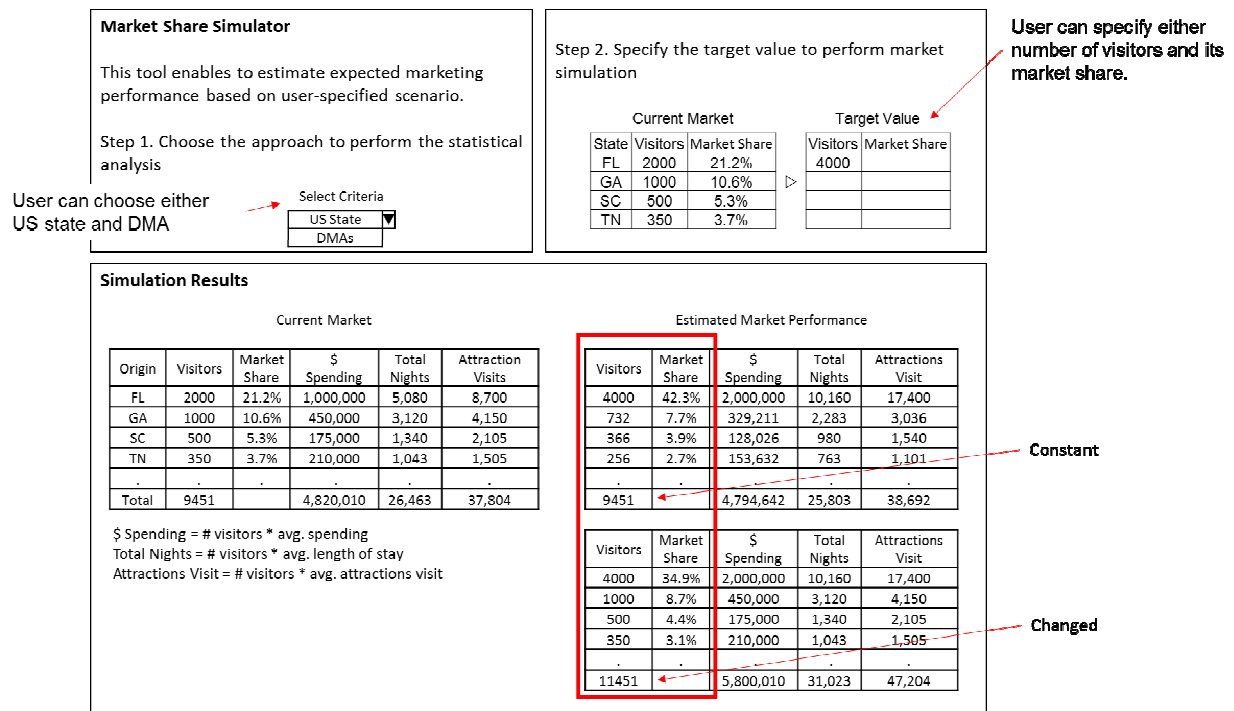


Figure 2. An illustration of a scenario-based system for advertising design

Case study

A middle-sized Midwestern city in the United States was used as a case study to examine the viability of the visited SBAD strategy. This destination was selected because it has conducted

several advertising programs over a two year period and is represented by only one DMA. As a result, this example is useful to identify the effect of destination advertising on market performance in easier ways regarding changes in external situations and outcome stability throughout the year.

Data used in this study were gathered using an online survey of individual travelers who had requested travel-related information about the destination in response to four advertising programs from 2012 to 2014. These advertising programs resulted in 21,270 inquiries, the measure of overall awareness of the respective advertising campaign. Subsequently, all inquirers were contacted using an online survey (up to three contacts over a one week process) and a total of 1,661 responses were obtained (which equates to a 7.8 percent response rate). Of these responses, 685 respondents actually visited the destination and provided their trip-related and demographic characteristics.

In the first step of this study, Equation 1 was used to derive a demand function and to identify the effect of DMA characteristics on tourism demand for each of the four advertising programs. The explanatory power of the four separate gravity models was relatively high (adj. R^2 : .82~.84), suggesting that future demand can be simulated using this equation to explain the impact of changes in market structures on destination advertising.

Next, multivariate regression (Equations 2, 3, and 4) were used to evaluate destination advertising with the collected online survey data (conversion: R^2 :.16; spending: ads. R^2 :.37; length of day: ads. R^2 :.23). In these analyses, the DAR model includes the effects of advertising on several trip decisions or facets; the results indicate travelers response to advertisements featuring attractions ($b = .331, p = .004$), and shopping ($b = .334, p = .004$) were statistically significantly associated

with travelers' average spending per day (Eq. 3), while advertising response to featured events ($b = .161, p = .016$) was related to travelers' length of trip (Eq. 4).

In the final step, a series of hypothetical scenario-based changes in market structures and incoming tourism flows and the coefficients of influencing factors derived from regression analyses were used in simulation analysis so as to identify a range of potential advertising strategies. For example, scenarios included changes in market structures brought by different characteristics of travelers (i.e., demographic, spatial tourism flows), which in turn, ultimately create different levels of destination value (e.g., experience, spending) while visiting a destination.

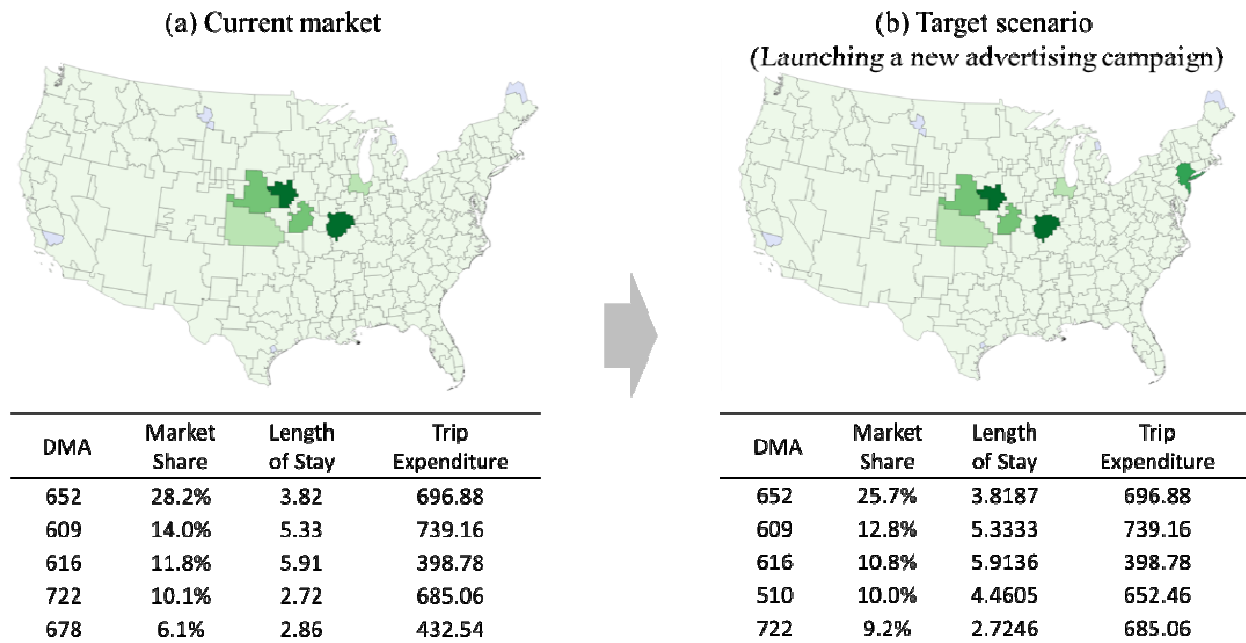


Figure 3. Results of a destination advertising simulation analysis

Discussion

This study describes a scenario-based advertising evaluation system which extends earlier advertising research into a dynamic environment. It is argued that modeling the dynamic characteristics of destination advertising and the subsequent impact on destination value creation are important in informing DMOs of potential risks relating to current markets and provides useful insights for adapting to major changes in the market environment ahead in time. Thus, the development of a scenario-based advertising strategies enable destination marketers to better design significantly more effective marketing and advertising strategies and, therefore, provide the opportunity to substantially increase their destination competitiveness and marketing performance.

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