A Cone-Shaped Typology of Destination Cities in the United States

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ABSTRACT

Based on a panel survey of Americans' travel behavior, this study adopts cluster analysis and discriminant analysis to build a typology of destination cities in the United States. Past studies relied on supply-side characteristics such as types of attractors and seasonality to categorize destinations; this study adopted tripographic variables for the cluster analysis, such as estimated annual tourist volumes, tourist ratios, trip purposes, accommodation types, trip lengths, and transportation modes. The results validated the 11 cluster solution of cities in the United States. The discriminant analysis results in six discriminant functions in which four are corresponding to the clustering variables. The finding could be useful for various destination marketing, competition, and benchmarking research.

Keywords: *cluster analysis, discriminant analysis, typology, destination cities.*

INTRODUCTION

A large chunk of extant tourism research is conducted at the destination level. One issue researchers frequently encounter is how to classify destinations. Indeed, classifying and then identifying comparable rival destinations are a basic premise of some of the most heavily studied tourism research topics, such as tourism impacts, destination positioning, market segmentation and targeting, destination attractiveness and competitiveness analysis, and destination benchmarking. A meaningful typology of tourism destinations not only allows marketers to make orange-to-orange comparisons, but also provides a reference frame for important decisions such as resource allocation and performance evaluation. As Buhalis (2000, p. 101) pointed out, "understanding and appreciating the type of destination enables marketers to develop a suitable destination marketing mixes and deliver them to the appropriate target markets."

Despite its importance and deceiving easiness, developing a meaningful destination typology remains a challenge (Buhalis, 2000; Faulkner & Tideswell, 1997; Wall, 1995). Most of the existing typologies are supply-based. For instance, Buhalis (2000) classified destinations into six categories based on "their principle attractiveness": Urban, Seaside, Alpine, Rural, Authentic third World, Unique-exotic-exclusive. Such classifications make intuitive sense and are useful for inventory purposes, but the categories are not always mutually exclusive (e.g., many destinations may fit both "urban" and "seaside" categories), which could defeat the purpose of a classification. Further, by focusing primarily on the resource aspect, such classifications seem to blur the line between destinations and visitor attractions (Leask, 2010), and do not effectively illustrate the complex nature of destinations as "an amalgam of tourism services and experiences" (Buhalis, 2000, p. 97). Finally, such classifications do not necessarily reflect tourists' perception of comparable destinations or their "choice set" (Crompton, 1992) in decision making process.

From a spatial perspective, Lew and McKercher (2002) proposed a destination typology based on the relative location of a destination within tourists' overall travel itinerary. Their

typology includes: Single Destination, Gateway Destination, Egress Destination, Touring Destination, and Hub Destination. This typology also has its limitation as it relies purely on one criterion, hence fails to consider important factors such as the size of the destination and tourists' purpose of travel. Finally, Faulkner and Tideswell (1997) proposed to classify destinations in terms of three extrinsic variables: (1) type of tourists (e.g. the percentage of visitors who are international); (2) tourist/resident ratio; and (3) seasonality (based on the Gini coefficient). Faulkner and Tideswell (1997) presented a valid theoretical development by involving multiple criteria in one typology. However, their classification was rather conceptually-derived and has not been empirically tested; it is unclear if the three criteria effectively classify different destinations into mutually exclusive groups. Nevertheless, their study inspired the present authors to further explore an alternative typology of tourism destinations in the city level based on multiple basic destination characteristics.

Outside the tourism literature, the classification of cities/towns has long attracted multidisciplinary interests, particularly from geographers and economists (Baum, 2006; Harris, 1943; Hill & Brennan, 2000; Hill, Brennan, & Wolman, 1998; Neal, 2006; Nelson, 1955). It seems most recent studies tend to combine multiple indicators in the classification. For instance, Baum (2006) grouped Australian cities, towns, and regions based on a set of socio-economic and demographic outcomes. In their study on central cities in the United States (U.S.), Hill, Brennan, and Wolman (1998) proposed a method which starts from a cluster analysis to group cities based on a number of variables, followed by a discriminant analysis to establish the statistical validity of the groups. The authors asserted that this method "can be used for any case in which developing taxonomies is important and where the grouping — and the distinguishing characteristics of the groups — are not known *ex ante*" (Hill et al., 1998, p. 1964). This study hence follows their method, and attempts to inductively develop a typology of destinations on city level in the United States based on multiple readily available tripographic statistics.

METHODOLOGY

For the purpose of this study, the authors acquired a dataset of American destinations' visitation statistics from a leading marketing research company. This company conducts monthly online survey on past 12-month U.S. travelers (monthly N ≈ 18,000) who have traveled more than 50 miles from their homes (excluding commuters), and reports information regarding volume projections to respondents' destinations and trip characteristics. The online survey draws a national representative sample of American households from the company's professionally maintained panel. The demographics of this sample were balanced to match the demographics of American travel population in general. Specifically, the data include the total estimated person-trip volumes for 533 U.S. cities for 2006, 2007, and 2008, along with the number of person-trips divided by different purpose (business or leisure), accommodation (paid lodging, private homes, or day visit), overnight stays or day visits, and transportation (by auto/truck or air). The population estimates for those cities were extracted from U.S. Census websites. To ensure the accuracy of the data and minimize the margin of error, this study focuses on cities receiving more than 400 responses accumulatively over the three years. This results in a total number of 316 eligible cities for final analysis. The data were analyzed via hierarchical cluster analysis and discriminant analysis, as recommended by Hill and colleagues (1998). Specifically, six different tripographic variables were employed, including the log of total person-trips (Hill, et al., 1998), tourist ratio (total person-trips to local population; Faulkner and Tideswell, 1997) and the percentages of the following variables to total person-trips: air travelers, business traveler, day visitors, and visitors who stayed at private home during travel.

RESULTS AND DISCUSSION

The researchers examined 19 solutions of hierarchical cluster analysis, from 2 clusters to 20 clusters. It turned out an 11- cluster solution presents face validity and was accepted as the optimal solution (Table 1).

Interestingly, several unique destinations emerged as their own clusters, including Lake Havasu (highest day tripper ratio, Cluster 11), Scottsdale (high on day visitors and air travel ratios, Cluster 8), and Washington DC (highest business travel ratio, Cluster 4); Wisconsin Dells and Tunica together form a unique cluster (Cluster 7) because they have the highest tourist ratios; Gaitlingburg and Deadwood and other two cities appeared to be nature-based cities with high tourist ratios (Cluster 6); three destinations from Hawaii formed a "Hawaii" cluster with the highest air travel ratios (Cluster 9); Cape May, Rehoboth Beach, and Eureka Springs are three unique cities with highest rate of private home stays; 7 metropolitan areas (Alexandria VA and Newark NJ) constitute a business travel dominated city cluster (Cluster 5); the top two tourist cities (Orlando and Las Vegas) formed a "tourist Mecca" cluster (Cluster 1)s, followed by 25 major metropolitan areas (Cluster 2). The remaining 267 regional destinations (Cluster 3) constitute the bulk of the person-trips (50%). The discriminant analysis (Table 2) confirmed the validity of the six variables used in the cluster analysis, as each of the four discriminant functions is related to one cluster analysis variable, and function 4 seems to distinguish small destinations with large business travels and function 3 is picking out larger destinations with business and VFR travelers. The tourist ratio, i.e., the amount of person-trips to local population, explained 72% of all variance in the clusters. The overall distribution follows a cone-shape: the top being "tourist Meccas", "metropolitans", and "regional centers", supported by unique cities at the bottom (Figure 1).

Table 1 11 Clusters Solution for Typology of U.S. Destination Cities

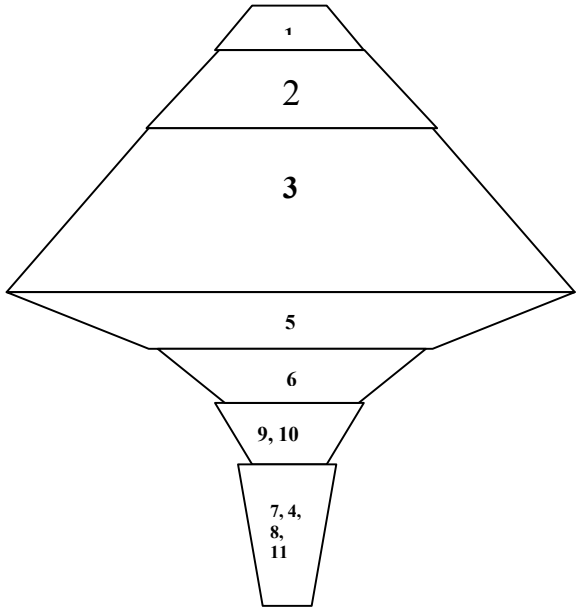
Cluster	# of Citie	Representative Cities	% person-trips*	Nicknames
1	2	Orlando, Las Vegas	3.7	Tourist Meccas
2	25	Chicago, Los Angles	20.4	Metropolitans
3	267	Memphis TN, Richmond VA	49.5	Regional Centers
4	1	Washington DC	0.61	The Capital
5	7	Alexandria VA, Newark NJ	1.25	Business Travels
6	4	Gatlinburg TN, Deadwood SD	0.99	Nature Centers
7	2	Wisconsin Dells WI, Tunica MS	0.43	Highest Tourist Ratios
8	1	Scottsdale AZ	0.29	Scottsdale
9	3	Maui HI, Kauai HI	0.49	Hawaii Island
10	3	Cape May NJ, Rehoboth Beach DE	0.36	Second Homes
11	1	Lake Havasu AZ	0.36	Lake Havasu

**The total percentage 78.4% represents the contribution of 316 cities to national person-trips.*

Table 2 Correlations between Discriminating and Clustering Variables

Functions	Tourist Ratio	Air Travel Ratio	Total Person Trips (log)	Business Travel Ratio	Day Visit Ratio	Private Home Stay Ratio	% of Variance
1	.932*	-0.108	-0.035	-0.120	-0.063	-0.072	72.087
2	0.144	.815*	0.576	0.383	-0.060	-0.135	12.591
3	-0.116	-0.249	0.221	0.523	-0.169	0.363	5.541
4	-0.160	0.123	-.654*	.620*	0.571	0.009	4.648
5	-0.220	-0.248	0.431	0.426	.797*	0.249	4.095
6	-0.151	0.432	-0.072	0.018	0.056	.885*	1.038

**Largest correlation between discriminating variable and clustering variables.*



**The size of each cluster represents its share of total national person-trips.*

Figure 1. A Cone-Shaped Typology of 11 Clusters

CONCLUSIONS

Every destination is unique and any classification will inevitably provoke discussions, protests, and controversies. However, classification is usually a critical step toward scientific investigation of a phenomenon and is often instrumental to theory development (Hunt, 1971). Different from past studies (Faulkner & Tideswell 1997, Buhalis, 2000; Lew & McKercher, 2002), this study adopted several demand-based variables and empirically construct a typology of American destinations at the city level. This study revealed the distribution of the U.S. destination cities mainly based on the size of tourism activities and the types of visitors they attract. Eleven clusters were identified, including many unique destinations. A large number of regional destinations form the largest cluster, which account for half of all person-trips. The finding could be useful for various destination marketing, competition, and benchmarking research. City-level destination marketing organizations will benefit from a good understanding of the position of their destinations in this typology. For instance, Orlando needs to compare itself to Las Vegas, not Gatlinburg; though Gatlinburg and Deadwood are farther away but their customer types are comparable; the same could be said about Wisconsin Dells and Tunica. On

the other hand, the 267 regional cities attract similar composite of travelers, thus they could compare to each other in adopting similar policy making procedures and benchmarking each other in their major indices.

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