ATTRACTION DIVERSITY INDEX: THE CONCEPT, MEASURE, AND ITS RELATION WITH TOURISM DESTINATION COMPETITIVENESS

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ABSTRACT

Traditionally, economists have attempted to develop indices that measure industry concentration and such indices have become the basis of considerable antitrust litigations. The inverse of industry concentration can give valuable managerial clues about industry diversity and competition. In this paper, we extrapolate these ideas and develop the blueprint for Attraction Diversity Index (ADI), which is conceived as a measure of the diversity of attraction types in a destination area. We also propose its inverse, Attraction Cluster Equity (ACE). In order to demonstrate the usefulness of these indices, some hypotheses linking ADI-ACE with related constructs in destination marketing are proposed and tested.

KEYWORDS: ATTRACTION DIVERSITY INDEX. ATTRACTION CLUSTER EQUITY. SEGMENTATION. COMPETITIVENESS. USP. CARIBBEAN.

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INTRODUCTION

Product diversity-related studies are abundant in the economics, management and general marketing literatures. It was theoretical economists interested in competition-related issues who first investigated the topic of diversity (Hotelling 1929; Lerner and Singer 1937). Hotelling (1929) modeled competition in differentiated product markets, initially focusing on two variables – price and location, an approach described as the ‘principle of minimum differentiation.’ One of the foremost economists offering insight into the value of product diversity was Chamberlin (1933). In his modeling of monopolistic competition, Chamberlin (1933) intimated that consumers can distinguish a wide range or variety of similarly substitutable goods and they select the optimal quantities to maximize their utility functions. Chamberlin (1937, 1950) builds on his original model of monopolistic competition by incorporating discussions of consumer desire for diversity, and the related tradeoffs, role of new entries into the marketplace, market size, and relationships between an organization’s demand curve and average cost curves.

Spence (1976) and Dixit and Stiglitz (1977) continued the focus on modelling monopolistic competition and the key role of product diversity in this model of competition. Chang (2011) offers a comprehensive review and some extensions of the collective works on monopolistic competition and product diversity. Ottaviano and Thisse (2011) identify Spence (1976) and Dixit and Stiglitz (1977) as the S-D-S model. Specifically, Ottaviano and Thisse (2011) indicate that in the “S-D-S model, monopolistic competition emerges as a market structure determined by consumers’ heterogeneous tastes and firms’ fixed requirements for limited productive resources. On the demand side, consumers with different tastes are aggregated into a representative consumer whose preferences exhibit a love for variety: he or she demands varieties of a
horizontally differentiated good and his or her utility is an increasing function not only of the amount of each variety consumed but also of the total mass of varieties available. On the supply side, production exhibits *economies of scale* within varieties but no economies of scope across varieties.” The S-D-S model has particular relevance to product diversity and related concepts, as evidenced, in part, by its focus on consumer preferences for ‘love of variety.’

In their work on monopolistic competition and multiproduct firms and product diversity, Ottaviano and Thisse (2011) conclude that product differentiation is low and economies of scope are weak in industries where the companies provide narrow or limited product offerings. Concomitantly, companies with relatively wide product lines are more likely to be associated with markets where products are quite differentiated and economies of scope are strong. Given high product differentiation and weak economies of scope, market structures will probably include many firms and considerable product diversity.

Tallman and Li (1996) examined how product diversity impacts the performance of a firm and found a quadratic relationship. Wan and Hoskisson (2003) concluded that the home country environments moderate any such relationship. Fiegenbaum and Karnani (1991) observed the unique advantages of small-scale enterprises from diversifying their product offerings. These authors stress that a diversified product portfolio is synonymous with output flexibility, a great asset in turbulent market conditions.

Using economic theory, Rumelt (1982) predicted the advantages of product diversity would still remain even after the effects of varying industry profitability were removed. However, the literature is not unified in its support for diversification. For example, Montgomery’s (1985) advocacy for less diversified firms is built upon the premise that highly diversified firms have lower ‘general market power’ in their respective markets than do less diversified firms, even when they wield some ‘specific market power.’ Also, economists have often highlighted the inherent disharmony between efficiency and diversity (Chamberlin 1933; Meade 1974).
On balance, the majority of economic approaches from Chamberlin (1933) to Spence (1976) and Dixit and Stiglitz (1977), among others, seem to offer some support for the relationship between product diversity and overall performance. As an extension of the economic, philosophical foundations of the link between product diversity and performance, management researchers and theorists offer a plethora of research evidence connecting these two variables. Purkayastha, Manolova, and Edelman (2012) offer an insightful review of the literature on the linkages between diversification and performance, with a keen focus on both developed and emerging markets. Given the extensiveness of the literature in the diversification and performance arena, Purkayastha, et al. (2012) structured their review of previous research according to three broad groupings: (1) the external perspective, which focused on industrial organization and institutional theories; (2) the internal perspective, focusing on the resource-based view (RBV), and (3) the finance perspective, which addresses risk-reduction motives of diversification, economies of internal capital markets, and the agency viewpoint. With particular focus on product diversification and financial performance, Su and Tsang (2015) examine the role of secondary stakeholders as moderating variables in linking financial indicators with product variation.

Adding further to the body of literature melding product diversity and performance, Lancaster (1990) translates monopolistic competition-related concepts from economics into marketing-dominant lingo. Lancaster asserts that the demand for variety stems from a taste for diversity in individual consumption. Lancaster examines the degree or extent of product variety along four dimensions: (1) the individual consumer – focusing on what determines choice; (2) the individual firm – linking various levels of product variety with varying degrees of profitability; (3) market equilibrium – analyzing the degree of product variety and the nature of the competitive structure of the market; and (4) the social optimum – the extent to which a certain mix of product variety is best for society in general. While Lancaster (1990) covered considerable conceptual turf, some of his general conclusions were that the degree of product variety increases with market competitiveness, and for the most part larger markets are associated with greater variety.
Collectively, economists, management theorists, and marketers have added to the literature of product diversity and performance variables. On balance, even with conflicting and competing research results based on conceptualization differences, methodological variations, and myriad interpretations, researchers across the above disciplines offer considerable support for the positive association between product variety and diversification and multiple aspects of organizational performance. Given this association, how does this linkage inform the current research? With specific focus on the tourism industry, the current paper focuses on the development of an attraction diversity index, which is a direct outgrowth of the product diversity and performance literatures, spanning economics, management and marketing. Of critical importance in this paper is how tourism developers conceptualize, construct, and implement attractive ‘tourism mix’ offering bundles of utilities, proportionately developed to consistently attract target audiences sufficiently enough to offer profitability levels for long-term growth. The remaining sections of the paper focus on conceptualizing attraction diversity, attraction cluster equity, study methodology, data analysis, and managerial implications.

CONCEPTUALIZING ATTRACTION DIVERSITY

Continuing with the above discussions, the question of a tourism destination’s attraction diversity is both that of the extent of variance in its attraction offerings and that of the rationale for such variance. The extent of variance itself is multifaceted. In its simplest form, it can be seen linearly as variance within the same attraction type (or same core product). For example, a destination country may have different kinds of beaches that could be placed on a linear continuum from calm to rough beaches. This is represented in Figure 1.
Figure 1. Attraction Diversity as Linear Variance

In the above example, different customer types (C1, C2, C3, C4) are attracted to different beach types and the associated businesses (B1, B2, B3, B4) capitalize upon the differences in customer tastes. Another example, even more linear than the one given above, is that of two restaurants serving the same menu distinguishing their businesses based on differences in location and price.

Attraction diversity may also be modeled based on the ‘convexity’ of consumer preferences (Dixit and Stiglitz 1977). This takes into account that a consumer’s preference for a compound product is not necessarily the sum total of consumer preference for each of the elements comprising the compound product. For example, a preference for coffee with cream and sugar may not be the sum of the individual preferences for coffee, cream and sugar. It is not unusual to find tourists fascinated by shopping and nature walks but not a nature walk dotted with shopping establishments. Similarly, tourists may prefer particular compound products even though they do not prefer some of the individual components of that mixture.

Such emergence of synergy means that USP-based promotions can be effective even for destination countries with diverse sets of attractions. In these situations, USP slogans could be framed around the mixture, as long as the mixture is perceived as an emergent single attraction in the minds of tourists.

Even though product diversity has remained prominent in the literature for the last half-century, its definition was typically assumed to be commonsense. According to
Ranaivoson (2005), Sterling (1998) was in the vanguard undertaking serious initiatives to operationalize the concept of ‘diversity.’ While Sterling (1998) did not define product diversity as such, his treatment of the term broadly included technological diversity and even biodiversity. He conceived diversity as being composed of three dimensions: variety, balance and parity. In the case of tourism destination countries, this could be visualized as presented in Figure 2.

![Attraction diversity as a multidimensional construct](image)

**Figure 2.** Attraction diversity as a multidimensional construct

**DEVELOPMENT OF AN ATTRACTION DIVERSITY INDEX (ADI)**

Theoretical attempts to mathematically model product diversity are commonplace in the literature. Although previous researchers have developed various product diversity measures, few, if any, are directly portable to measuring diversity of attractions in a tourism destination country. While a country is not a company, nor is its attraction portfolio synonymous with the product portfolio of a company, the same basic conceptual framework used in traditional business contexts can be adapted for tourism destination attraction diversity measurement.
Common approaches for measuring business diversity include the ‘count approach’ (Jacquemin & Berry 1979; Varadarajan & Ramanujam 1987) and the ‘categorical approach’ (Wrigley 1970). The categorical approach subjectively classifies businesses into the categories of single business, dominant business, related business, and unrelated business (Rumelt 1974). Two ratios are calculated: a specialization ratio ($Rs = \frac{\text{revenue attributable to the largest single business}}{\text{total revenue}}$) and a related ratio ($Rr = \frac{\text{revenue attributable to the largest group of related single businesses}}{\text{total revenue}}$). The values of these ratios are then used to determine the category of diversification. In practical terms, this approach has difficulties: the relatedness between businesses are very subjective and even though overall revenues may be publicly available, data related to particular products, product lines, or related business groups are very hard to come by. Finally, for the current research, this approach is not suited, since it focuses on the type of diversity rather than the degree of diversity.

Conversely, the count approach is directed toward measuring the degree of product diversity. In its simplest form, diversity can be modeled as $D = N - 1$, where $D$ is a measure of diversity and $N$ represents the number of distinguishable products. Thus, in the special case of a destination country with only one attraction, $D = 0$.

The Herfindahl-Hirschman Index (HHI) provides a more robust operationalization of this approach. This index measures the size of firms in relation to the industry and is an indicator of the amount of competition among them. That is,

$$H = \sum S_i^2$$

where $S$ is the market share of firm ‘$i$’ in the industry. Typically, an $H$ below 0.01 indicates a highly competitive, no concentration index.

- An $H$ below 0.15 indicates a largely un-concentrated index.
- An $H$ between 0.15 to 0.25 indicates moderate concentration.
- An $H$ above 0.25 indicates high concentration.

If all firms have an equal share of the market, the reciprocal of the index shows the number of firms in the industry. When firms have unequal shares, the reciprocal of the index indicates the "equivalent" number of firms in the industry. For the purpose of
this study, HHI is used as a measure of the size of particular tourism attraction types in a
country in relation to its overall tourism industry. An increase in HHI could be
interpreted as a decrease in the attraction type diversity and vice versa.

The tourism attraction diversity of a destination country is operationalized as the
inverse of HHI. Mathematically, Attraction Diversity Index (ADI) is represented as:

\[ ADI = \frac{1}{\sum (MS_i)^2} \]

For example, \( MS_1 \) represents the market share of attraction cluster 1. Also, market share
for a cluster = revenue generated by the cluster / total tourism industry revenue for the
country.

**ATTRACTION CLUSTER EQUITY (ACE)**

As noted above, since HHI measures concentration, its inverse may be used to
measure competition / diversity. Yet, tourism presents a distinctive case among
industries. Using market shares of attraction types as the key determinants of diversity
has certain notable downsides. For one thing, market share for particular attraction
types reflect past marketing efforts and tourism policy priorities. Also, market share
depends upon the singular aspect of revenue generation. Actually, misleading figures
may result when some distinctly different attraction types do not figure highly on the
revenue generation radar. Finally, in order to calculate ADI this way, it is necessary to
overcome the operational difficulty of calculating revenues and market shares of
individual attraction types. This led to the creation and operationalization of what would
become the Attraction Cluster Equity (ACE) construct. The ACE is designed to measure
the value of an attraction type for a destination country in a more meaningful way than
the market share.

In order to calculate ACE, the top attractions in each country were determined as
identified by TripAdvisor (www.tripadvisor.com) users. The top attractions for each
country were classified into various known attraction categories. Then, each such
classified attraction was weighted according to the aggregated ‘stars’ assigned (1 to 5
stars) by the users. In order to ensure that the aggregated star values were generalizable, no attraction with less than 30 stars was included.

For more in-depth discussion of this procedure, the case of Jamaica is instructive. The top nine attractions were classified into five clusters, as shown in Table 1. Each of these attractions was weighted in each cluster with their corresponding star values. Afterwards, these values were added to calculate the relative importance of that particular attraction cluster.

<table>
<thead>
<tr>
<th>Attraction Type</th>
<th>Beach &amp; Beach Activities</th>
<th>Cultural Heritage Attractions</th>
<th>Wilderness Attractions</th>
<th>Shopping, City, and Night Life</th>
<th>Business Attractions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighted Value of the Attraction Type</td>
<td>2 x 4.5 star beaches 3 x 3 star beach activities, 2x4.5+3x3=18</td>
<td>1 x 4 star heritage attraction, 1x4=4</td>
<td>1 x 3 star wildlife refuge 1x3=3</td>
<td>1 x 5 star night life 1x5=5</td>
<td>1 x 4 star business event location 1x4=4</td>
</tr>
<tr>
<td>Attraction Cluster Equity (ACE)</td>
<td>18/(18+4+3+5+4) =.52</td>
<td>4/(18+4+3+5+4) =.12</td>
<td>3/(18+4+3+5+4) =.09</td>
<td>5/(18+4+3+5+4) =.15</td>
<td>4/(18+4+3+5+4) =.12</td>
</tr>
<tr>
<td>Table 1. An Example Demonstrating ACE Calculation</td>
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Thus, mathematically,

Attraction Cluster Equity (ACE) = Weighted value of the attraction type / ∑ Weighted values of all the attraction types.
THE STUDY

In order to test the nomological validity of the ADI-ACE indices, the current authors introduce these indices to complement ongoing research initiatives on Unique Selling Propositions (USP). This research project began in the early 2000s and historically tracked the use of USPs among the various Caribbean national tourism authorities (Miller and Henthorne, 2006).

Given this evolving research stream, it is appropriate from conceptual and managerial perspectives to examine the link between attraction diversity of a destination country and USP-based promotions. The fundamental research question of focus is whether small and less diverse destination countries were more likely to adopt USP-based tourism marketing campaigns than their larger and more diverse counterparts. This appeared quite likely given large countries with diverse attractions may have a higher probability of more diverse interest groups, thus making USP choices and their adoption problematic. Qualitative reviews of the Caribbean tourism literature and informal interviews with stakeholder groupsoffer a priori support that tourist industries in destination countries with high attraction diversity may be substantially more resistant to adopting a USP-based approach.

Richardson and Cohen (1993) created the following hierarchical categorization of USP marketing slogans, for their analysis of tourism campaigns by U.S. states:

- Level 0: No proposition
- Level 1: Proposition equivalent to “Buy our product”
- Level 2: Proposition equivalent to “Our product is good”
- Level 3a: Proposition gives a product attribute, but virtually any [tourism destination] could claim the same attribute
- Level 3b: Proposition gives a product attribute, but many [tourism destinations] claim the same attribute
- Level 4a: Proposition gives a unique product attribute which is not a product benefit (i.e., does not “sell”)
- Level 4b: Unique selling proposition (Richardson and Cohen 1993, p. 95).
In large and diverse tourism destination countries, even if the USP approach is used, slogans representing the USP are likely to be delimited to the lower levels of a hierarchy of slogans.

METHOD

The marketing slogans of all members of the Caribbean Tourism Organization were examined, based both on the destinations’ slogans and images on their own official tourism marketing websites. Data snapshots were taken in 2004, 2009 and 2014, towards the latter end of each of these years, generally considered as the beginning of the high season for Caribbean tourism. Data analysis included both text slogans and visual images (usually photographic) on the destinations’ websites. Textual analysis followed, as closely as possible, Richardson and Cohen’s (1993) liberal interpretation of uniqueness.

Visual analysis focused primarily on the extent to which employed stereotypical and generic images of “sun & sand” tourism – sunny weather and sandy beaches being fairly ubiquitous commodities across the Caribbean region. We understand that a unique selling proposition is not merely ‘what’ is said, but also ‘how’ it is said (Laskey, Day and Crask 1989). In remedying some of the shortfalls of overly reductionist research that often fail to recognize such differences in execution, the current research embraces a mixed-methods approach. A mixed-methods approach encourages infusing quantitative analysis with qualitative insights to provide richer and more credible data.

DATA ANALYSIS

To examine the relationship between attraction diversity and USP use, the researchers fitted straight lines \(y=mx+c\) over the data available. Given that study data were on the entire population, a statistical testing of significance of this relationship was
deemed unnecessary. Three equations were derived based on the data for 2004, 2009 and 2014 (x=attraction diversity index; y=USP level):

2004

\[ y = 0.117128x + 1.972817 \]

2009

\[ y = 0.161789x + 2.477685 \]

2014

\[ y = -0.126659x + 2.864197 \]

Interestingly, the expected relation was true only for the 2014 data (Figure 3). What could this mean? Possibly, this implies that tourism marketing over the years has become more of a negotiated and democratic process. Smaller attraction types might not
have wielded the same lobbying power over marketing policy authorities in the past. An alternative explanation is that tourism authorities understand the consequences of highly-targeted and narrowly-specified USP-based campaigns for their destinations.

While the 2014 data shows attraction concentration measured in terms of ACE indicates an overall trend, the trend results from multi-directional currents at the country levels: some countries with really low attraction concentration have low USPs; also, a few countries with above average diversity still opt for relatively higher levels of USP implementation relative to their peers (Figure 4).

Figure 4 - Attraction Concentration – 2014 USP-Level Distribution

Additionally, the paper examined correlations between attraction diversity and the prediction of arrival figures. The result was negative overall (R²=0.00164, Sig=0.820123). Again, given the data represents the entire population, the lack of statistical significance is not considered an issue. This analysis shows higher diversity does not mean higher arrivals. This makes sense intuitively, given that most tourists visit a specific Caribbean destination seeking a single type of attraction. Thus, both strategically and operationally, it bodes well for each island nation to offer the best in terms of that single unique attraction and to craft its value equation accordingly.
DISCUSSION

Increasingly, tourism destinations are responding to the ever-dynamic preference demands of discerning customer prospects with more varied and attractive bundles of value. As destinations become more competitive and marketing effort becomes more creative and persuasive, increased pressure to maintain or gain tourism destination market share is evident. Practitioners are grasping for new and varied means of differentiating tourist service offerings. Their efforts to revitalize USP-based thinking and action tend to drive much of their marketing behavior.

The current study builds on the USP mindset overlaid with conceptual and operational vestiges of market segmentation. Market segmentation as a mainstay of marketing practice emanated from economic theory, which is the foundation of the attraction diversity index and the attraction cluster equity construct in the current paper. In their seminal work on market segmentation theory, Claycamp and Massy (1968) viewed market segmentation as a tool to maximize profits and to optimize resource allocation. They further supported the idea that segmentation should be seen as a process of aggregation as opposed to disaggregation. The notion of aggregation is again consistent with the current attraction index. From an aggregative perspective, it is important to reinforce the point that tourists, as other consumers, respond differently to marketing stimuli. USP-tinged marketing stimuli designed for particular tourist market segments reinforce the likelihood of a successful marketing strategy. Success includes designing and implementing attractive tourist mixes consistent with the expectations of particular sectors of tourists.

Market segmentation allows for concentrated marketing effort. Dolnicar, Freitag, and Randle (2005) reinforce the notion that the more competitive a market environment, the more successful the concentrated market segmentation strategy is likely to be. This is consistent with the underlying premise of the current paper, in that concentrated effort and the development of a cluster of attractions should provide a more appealing range of tourist product/service offerings. An additional perspective on
market segmentation is offered by Hunt and Arnett (2004), where they suggest grounding segmentation strategy in Resource-Advantage Theory, while linking market segmentation strategy and competitive advantage. They suggest that segmentation’s underlying thesis is the achievement of competitive advantage, and thus superior financial performance, through the identification of segments and the associated strategy development processes. Hunt and Arnett (2004) further intimate that segmentation is based on the existence of demand heterogeneity and an understanding of why firms opt to produce and market a mix of market offerings. Hunt (2015) build on Hunt and Arnett (2004) in addressing the theoretical foundations of strategic marketing and marketing strategy, within the context of Resource-Advantage Theory. The conceptual melding of competitive advantage, market segmentation, and Resource-Advantage Theory provides managerial guidance within the context of the attraction index in the current research. This attraction index provides a systematic frame of reference from which tourism managers and others can calibrate their marketing strategies, with particular emphasis on product/service mix design, development and implementation. Additionally, the attraction index encourages tourist organizations to go beyond the assemblage of products and services, but to focus on building the right cluster of relationships. In their work on reimagining the role of marketing in the organization, Rust, Moorman and Bhalla (2010) suggest that traditional marketing departments should be reconfigured as customer-centric units focused on building customer relationships rather than pushing specific products.

Managerially, the current research on attraction diversity index and the associated attraction cluster equity concept offers a plethora of insights useful in guiding the analysis, planning, and implementation of strategic and operational marketing efforts in the tourism industry. As tourist organizations seek to leverage their USP positions and resources for maximum competitive advantage, the current work offers guidance and direction.
CONCLUDING REMARKS

This paper reported attempts to conceptualize and operationalize attraction diversity index and attraction cluster equity. These two complementary concepts in the destination management literature are virtually absent. The current work offers a concerted and integrative effort to partially fill this conceptual and operational vacuum in the destination management literature.

As a first step, the paper demonstrated how ADI-ACE could be used to quantify the extent of monoculture of attractions and how marketing strategies get determined by its concentrating power. The preliminary effort in this research provides clear pathways for future researchers to refine these indices and to employ them in the analysis of various issues related to competition and diversity in tourism destination areas.
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