The Value of Air Access: 
First Empirical Results of a Contrast Model Comparing Objective Access and Access Perception 

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ABSTRACT

Air access is a critical factor in the development of tourism destinations in Asia and the Pacific. This paper presents the value of access – and specifically the value of air access – as a core concept in destination management and destination marketing arguing that, through the process of development and consolidation of the objective access value of a destination, the destination management outcomes might be maximised by destination marketing strategies focused on the access perception since the objective values associated with the different dimensions of access of competing destinations might not be consistent with the corresponding access perceptions found at the market for the same dimensions. Air access can be evaluated isolating objective dimensions of access: (1) direct access (direct flight vs. indirect hub connection flights); (2) time access (travelling time from the origin to the final destination); (3) distance access (distance from the origin to the final destination); and (4) price access (air tickets total price); or through the concept of access perception which, since individuals do not generally have full information about the exact values for the objective measures, will probably wield a higher influence on the decision of travelling and on the decision of travelling to one particular destination. The concept of access perception can be measured using symmetrical measures to the objective ones, allowing the comparison between the values considering the following dimensions: (1) perception of direct access (belief that the origin and destination are connected by a direct flight); (2) perception of time access (estimation of the total travelling time from the origin to the final destination); (3) perception of distance access (estimation of the total distance from the origin to the final destination); (4) perception of the price access (estimation of the air tickets total price). The research data was obtained via questionnaire structured interviews over a sample of 600 respondents. The analysis of the results will provide a first test for the model framework along with additional information to be applied in further developments. The theoretical and operational implications of the study are discussed, exploring some possible future research directions.

Keywords
Access, air access, objective access, access perception, value, access contrast model, destination management, destination marketing, destination competitive advantage.

1. AN INTRODUCTION TO THE CONCEPT OF MENTAL MAP AND TO THE ACCESS CONTRAST MODEL WITHIN THE FRAMEWORK OF AIR ACCESS AS A FACTOR OF DESTINATION COMPETITIVENESS

Strategic location is a natural advantage for a destination (Balakrishnan, 2008) and access becomes critical since the geographical location does not any longer represent a direct competitive advantage. Access hubs are now the competitive factor and, following the access contrast model (Moreira, 2007c), this paper will present arguments towards a perspective defending that, more than the objective access, the perceived access holds the potential to influence travel decisions.

The two points of departure for introducing this idea are the case of the Kong Mountains, in which a cartographer’s error was replicated until it became a standard in geography, and the first experiments in psychology in which rats were released in labyrinths to explore the development of mental maps and their influence on behaviour.

The case of the Kong Mountains can be summarised as follows: "Basset and Porter (1991) recount the rise and fall of a fictitious mountain range in West Africa during the 19th century. Called the Kong Mountains, this range sprang into existence when a misinformation about the existence of mountains in the region was reported. An inventive cartographer who mapped the territory explored by the expedition expanded the dimensions of the fictitious range, so much that it began to appear on various maps as a dominant feature in Africa. In a study of 99 maps made between 1789 and 1890, Basset and Porter found that the Kong Mountains or an unnamed range appeared on 91.

A French military officer named Louis-Gustave Binger finally wiped the Kong Mountains off the maps after his well-publicized expedition to this region in the late 1880s. During their century of existence, the Kong Mountains influenced European economic interests in the African continent because traders believed that the range barred transport between the coast and the interior" (Monastersky, 1992:223).

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Following his experiments on cognitive maps in rats and men, Tolman (1948:192) developed the idea that tentative cognitive maps of the environment “indicating routes and paths and
environmental relationships” determine behavioural responses. However, “Mental spaces are not simply internalized images of external spaces. Rather, they are schematized, eliminating detail and simplifying features. They are mental constructions, built around frameworks consisting of elements and the relations among them” (Tversky, Morrison, Franklin, Bryant, 1999:516). Tversky (1993, referred by Bernardo, 2002) proposes the term “spatial mental models” for mental representations or cognitive maps related with spatial relationships and perceptual heuristics. The perception of distances and the perception of accessibility are aspects of spatial cognition that influence decisions on destinations and travel modes (Hannes, Janssens, Wets, 2008). The influence of spatial cognition on decisions and behaviour can be rather strong given that mental representations are always simplifications of the reality and vulnerable to bias (Arentze, Dellaert, Timmermans, 2008). The idea that destination competitiveness depends on access finds support in the literature (e.g., destination loyalty was found to be dependent on safety, the perception of cultural differences and the perception of transportation convenience, Chen, Gursay, 2001), and the study of Saarinen (1988) shows that individuals have indeed a distorted representation of the world (Monastersky, 1992). The research on cognitive maps also supports the assumption that “the map describes or predicts behaviour” (Eden, 1992:261) and the existence of a link between the map and the observed behaviour. A mental map is understood as more than a mental representation of space, as a plan for action that leads from a point of departure defined in space and time to a desired position and expected outcomes in the future, in the theoretically proximity of the concepts of cognitive scripts, schema, and scheme. Cognitive scripts are a “cognitive structure that, when activated, organizes comprehension of event-based situations” (Abelson, 1981:715) and “a unique type of knowledge schema” (Lord, Kernan, 1987:265), under the understanding of schema as a knowledge structure (Lord, Foti, 1986), whilst “schemes represent relatively autonomous, organized sequences of behaviour (Eckblad, 1981, referred in Lord, Kernan, 1987:267).

The access contrast model (Moreira, 2007c) suggests that air access can be evaluated isolating objective dimensions of access: (1) direct access (direct flight vs. indirect hub connection flights); (2) time access (travelling time from the origin to the final destination); (3) distance access (distance from the origin to the final destination); and (4) price access (air tickets total price); or through the concept of access perception which, since individuals do not generally have full information about the exact values for the objective measures, will probably wield a higher influence on the decision of travelling and on the decision of travelling to one particular destination. The concept of access perception can be measured using symmetrical measures to the objective ones, hence allowing the comparison between the values, considering the following dimensions: (1) perception of direct access (belief that the origin and destination are connected by a direct flight); (2) perception of time access (estimation of the total travelling time from the origin to the final destination); (3) perception of distance access (estimation of the total distance from the origin to the final destination); (4) perception of the price access (estimation of the air tickets total price).

The analysis of these initial results will provide a first test for the model framework along with additional information to be applied in further developments. Finally, the theoretical and operational implications of the study are discussed, exploring future research directions.

2. METHODOLOGY AND FIRST RESULTS

The questionnaire based interviews were held in Macau in October of 2008 on a total sample of 600 respondents. Descriptive statistics of the sample show an age distribution of 40% for 25 years or less, 27% from 26 to 35 years, 15% in the 36 to 45 years category, 12% from 46 to 55 years, and less than 10% with or above 56 years. The gender distribution was of 55% female and 45% male respondents.

The majority of the sample was born in Macau (39%), Mainland China (25%), Hong Kong (13%) and Taiwan (7%), with 9% distributed by other places of birth. In terms of place of residence Macau was also dominant (54%), followed by Mainland China (17%), Hong Kong (12%), Taiwan (8%), and 7% distributed by other places of residence.

<table>
<thead>
<tr>
<th>Thinking about your next flight, which would be more important to you?</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>A direct flight between Macau and the city where I want to travel to</td>
<td>3.6</td>
<td>1.1</td>
<td>4.0</td>
</tr>
<tr>
<td>A lower travelling time</td>
<td>3.6</td>
<td>1.1</td>
<td>4.0</td>
</tr>
<tr>
<td>A lower distance</td>
<td>3.5</td>
<td>1.1</td>
<td>4.0</td>
</tr>
<tr>
<td>A lower price</td>
<td>3.8</td>
<td>1.1</td>
<td>4.0</td>
</tr>
</tbody>
</table>

The access dimensions importance ranking in Table 1 shows the most important dimensions were price and direct flight (with no significant difference between them; t(593,1)=3.2, p<.01). Time is the third most important dimension (with a significant difference from direct flight; t(593,1)=4.6, p<.01), followed by distance (with a significant difference from time; t(594,1)=3.2, p<.01).
In all the four dimensions the differences between itinerary are presented in Table 3.

The means and standard deviations of the access dimensions, direct flight (Figure 1).

Factor 2 differentiates the secondary dimensions of price and groups the primary dimensions of access time and distance and variance (Factor 1 loading 54%; Factor 2 loading 19%). Factor 1

The two factors isolated in Table 2 represent 73% of the explained variance (Factor 1 loading 54%; Factor 2 loading 19%). Factor 1

London for the dimension direct flight (Table 4).

Table 2. Factor analysis component matrix

<table>
<thead>
<tr>
<th></th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>direct flight</td>
<td>.64</td>
<td>-.59</td>
</tr>
<tr>
<td>time</td>
<td>.10</td>
<td>.11</td>
</tr>
<tr>
<td>distance</td>
<td>.00</td>
<td>.05</td>
</tr>
<tr>
<td>price</td>
<td>.60</td>
<td>.78</td>
</tr>
</tbody>
</table>

The two factors isolated in Table 2 represent 73% of the explained variance (Factor 1 loading 54%; Factor 2 loading 19%). Factor 1 groups the primary dimensions of access time and distance and Factor 2 differentiates the secondary dimensions of price and direct flight (Figure 1).

The means and standard deviations of the access dimensions, revealing the itinerary preferences between the alternatives presented by the questionnaire for a Macau-London connection are presented in Table 3.

Table 3. Access perception dimensions and itinerary scores

<table>
<thead>
<tr>
<th></th>
<th>direct flight</th>
<th>price</th>
<th>time</th>
<th>distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macau-Hong Kong-London</td>
<td>3.8</td>
<td>3.7</td>
<td>3.1</td>
<td>3.0</td>
</tr>
<tr>
<td>Macau-Singapore-London</td>
<td>3.0</td>
<td>3.1</td>
<td>0.9</td>
<td>3.0</td>
</tr>
<tr>
<td>Macau-Bangkok-London</td>
<td>2.9</td>
<td>0.9</td>
<td>3.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Macau-Tokyo-London</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

In all the four dimensions the differences between itinerary preferences were found to be significant for p<.01, with the exception of Macau-Singapore-London and Macau-Bangkok-London for the dimension direct flight (Table 4).

Table 4. Access perception dimensions and itinerary rankings

<table>
<thead>
<tr>
<th></th>
<th>direct flight</th>
<th>price</th>
<th>time</th>
<th>distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macau-Hong Kong-London</td>
<td>3.8</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Macau-Singapore-London</td>
<td>3.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Macau-Bangkok-London</td>
<td>2.9</td>
<td>0.9</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Macau-Tokyo-London</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
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</tbody>
</table>

One itinerary option involving only one flight, Macau-Hong Kong-London, when compared with the three other flight + flight itineraries was perceived as the most favourable in all criteria, in line with the objective dimensions of access. Despite the clear preference, this option involves more risk and lower convenience, especially in the versions ‘turbojet ferry + airport bus + flight’ or ‘turbojet ferry + subway + airport express train + flight’ (since the modes are not integrated) although the more recent alternative of direct turbojet ferry to the Hong Kong airport is integrated with a bus service already inside the airport area and offers the possibility of flight check-in (both seat and luggage) in Macau.

3. CONCLUSIONS

Access is, along with other factors (e.g. information available (Moreira, 2009), risk (Moreira, 2007d) and risk perception (Moreira, 2007a, 2007b, 2004a, 2004b), destination dimensions (Moreira, Vong, McCartney, 2002), critical to establish and consolidate the competitive advantage of a destination.

Within the frame of the access contrast model, the higher importance air access perception dimensions identified in this study were direct flight and price, followed by time and distance. Two factors were isolated (primary and secondary dimensions of access) explaining a dominant percentage of the variance and separating a high uncertainty-high variability dimension from a low uncertainty-low variability dimension.

There was a clear preference for one option involving the departure of an airport in another city and a combination of sea-land-air transport modes, involving in principle a higher risk and lower convenience, instead of the origin city departure and flight plus flight options, perhaps due to the reliability of the service and to the fact that the image of the local airport is not associated with long haul flights.

There are indications of distortions in the mental representation of some routes that deserve further exploration. Under the theoretical assumption that perceived access influences travelling decisions, these first results suggest that the access contrast model (Moreira, 2007c) could evolve and contribute to the understanding of what influences individuals air travelling patterns.

4. REFERENCES


