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INTERNATIONAL COMPETITIVENESS IN HOT SPRINGS TOURISM: AN APPLICATION OF THE ANALYTICAL HIERARCHY PROCESS APPROACH

CHENG-FEI LEE* and BRIAN KING†

*Department of Marketing Management, Shih Chien University, Neimen Shiang, Kaohsiung Campus, Taiwan, R.O.C.
†Centre for Tourism and Services Research, Victoria University, Melbourne, Australia

This study provides an evaluation of the potential of Taiwan's hot springs tourism sector by proposing a model of competitiveness that has broad applicability to hot springs destinations. Using the analytic hierarchy process method to generate weightings for the various elements which contribute to destination competitiveness, the study prioritizes aspects of hot springs tourism which would benefit from further development. A panel of experts commented on the relative competitiveness of hot springs tourism in Taiwan and Japan, and concluded that hot springs proprietors need to reinforce their conservation efforts and engage in the sustainable use of hot springs and surrounding environments. They noted that governments should formulate and implement strategic destination planning and development to avoid a repetition of previous mistakes. The increasing Taiwanese preoccupation with good health and longevity and Taiwan's rich endowment of high-grade natural hot springs produces a favorable environment development of the hot springs tourism sector. It also offers business opportunities to extend the appeal of hot springs tourism into health protection and medical treatment. The article concludes that Taiwan's hot springs tourism sector has a promising future, but that concerted effort will be needed to match the product offerings of its competitors.

Key words: Hot springs tourism; Comparative analysis; Destination competitiveness; Analytical hierarchy process

Background

A growing body of scientific evidence indicates that the minerals that may be extracted from certain springs have properties capable of curing or easing various ailments. The economic value attached to such attributes has led many countries to finance, plan, and develop destination development around such hot springs and to promote visitation. Although well established in Western societies, spa and hot springs tourism is a relatively recent phenomenon in Asia (Henderson, 2004). Within Asia, Japan has successfully positioned itself by leveraging its distinctive bathing culture

Address correspondence to Cheng-Fei Lee, Assistant Professor, Department of Marketing Management, Shih Chien University, No. 200, University Rd, Neimen Shiang, Kaohsiung Campus, Taiwan, 845, R.O.C. Tel: 886-076678888, ext. 6126; Fax: 886-076678888, ext. 4251; E-mail: fei1999@hotmail.com

and the richness and diversity of the healing powers offered by natural hot springs. Visiting hot springs is one of the most popular motivations for travel within Japan (Kobayashi, 2000). Japan is Taiwan's major inbound leisure market, and Japanese bathing habits and preferences have helped to shape the hot springs and spa tourism market. Taiwan has recently emerged as a regional destination promoting its abundant hot springs resources both domestically and internationally.

Taiwan's location on the fault line between the Euro-Asian and Philippine continental plates has led to an abundant distribution of high-quality natural hot springs, which offers a strong foundation for its development as a desirable hot springs tourism destination. Development dates back to 1894, when the Peitou hot springs were exploited to create a small-scale local spa. During the Japanese occupation (1895–1945), the colonial authorities promoted and enhanced the natural hot springs amenity. The four major hot springs, Beitou, Yangmingshan, Guanziling, and Sichongxi, were discovered and the first hot springs resort, Tenguan, was opened in Beitou in 1896. The Japanese influenced Taiwanese attitudes by bringing their rich culture of springs soaking. Following Taiwan's retrocession in 1945, hot springs gradually lost their public appeal, prompting the authorities to neglect the resource and its regulation. In the absence of regulation and of any formal grouping of hot springs proprietors, overexploitation of the natural environment and natural resources became widespread. Indicative of the loosely regulated environment, the Water Resources Agency reports that only 20% of Taiwan's hot springs establishments were in possession of the required water and land permits ("Hot Springs Proprietors," 2005).

The Taiwan government has proceeded to stimulate hot springs tourism and has engaged in extensive marketing in the period since 1991. The "Hot Springs Development Management Program" was introduced in 1999 and the "Spa Law" followed in 2003. This law formalized the conservation and sustainability of natural hot springs resources. The Hot Springs Tourism Association was established during the same year to support, coordinate, and provide technical guidance to local businesses and individuals involved in hot springs tourism. As a result of these initiatives, an increasing percentage of the Taiwanese population have visited hot springs and the quality of the hot springs tourism experience for domestic tourists has improved. However, Taiwan is not yet competitive internationally. The amenity of many public and commercial facilities located in hot springs areas has been degraded through a lack of repair and maintenance. In addition, many hot springs proprietors have not incorporated the surrounding environment within the hot springs experience in the most aesthetic sense. In recognition of this limitation, a framework is needed to measure and analyze the potential of the sector domestically and internationally. A model of destination competitiveness could assist industry and government stakeholders to identify destination strengths and weaknesses, to highlight opportunities and to combat potential threats to development and visitation (Dwyer, Mellor, Livaic, Edwards, & Kim, 2004).

Driven by a variety of socioeconomic and lifestyle changes, consumer demand for health and wellness oriented leisure activities is likely to show substantial growth. If Taiwan is to be marketed internationally as a hot springs tourism destination in this environment, it will need to enhance its competitiveness. The present study proposes a model of destination competitiveness based on a supply-side perspective of the potential of Taiwan's hot springs tourism sector. The approach that has been adopted represents a first and necessary step to understanding the improvements that will be needed to strengthen and expand the sector's international reach and competitiveness. A supply-side perspective is viewed as being capable of providing an accurate measure of hot springs tourism competitiveness, because respondents who are knowledgeable about the complete spectrum of destination competitive resources are regularly engaged in contact with consumers (Faulkner, Fredline, & Oppermann, 1999; Gearing, Swat, & Var, 1974; Hudson, Ritchie, & Timur, 2004). They are well placed to articulate any perceptions that are prevalent in the market and to provide advice on sustainable development strategies.

Literature Review

The concept of competitiveness has been widely applied to tourism destinations (Buhalis, 2000;

Crouch & Ritchie, 1999; d'Hauteserre, 2000; Dwyer & Kim, 2003; Enright & Newton, 2004; Hassan, 2000; Heath, 2003; Ritchie & Crouch, 2000, 2003). Competitiveness has formed a basis for the selection of principles to guide the development of a model. Destination competitiveness models are worthwhile because destinations are a focal point for motivating visitors, delivering tourism products and services, implementing tourism planning and management strategies, and contributing to memorable tourism experiences. Previous work by Dwyer and Kim (2003), Enright and Newton (2004), and Ritchie and Crouch (2000) has identified the key determinants of destination competitiveness. These determinants may be classified into three major categories: resources and attractors, destination strategies, and destination environments. Destination resources and attractors refer to the critical destination attributes which attract visitors and provide a foundation for sustainable tourism (Crouch & Ritchie, 1999). They include local facilities and services, sociocultural and environmental resources and public goods (Buhalis, 2000). Because many tourism resources and attractors are irreplaceable, strategy formulation and implementation is needed to ensure sustainable resource use (Buhalis, 2000). Destination strategies may be thought of as processes or actions which aim to match internal tourism resources and destination attractions with external environments (Crouch & Ritchie, 1999). Developing destination strategies is complex, partly because the destination product is complex. It involves the organization of management and marketing activities at the enterprise level and the practice of destination policies, planning, and development (Dwyer & Kim, 2003; Ritchie & Crouch, 2000). Finally, destination competitiveness is shaped by external environmental forces over which the authorities exercise minimal control (Kotler, Haider, & Rein, 1993). Destinations that are vigilant to environmental changes are likely to be more proactive and are better positioned to predict opportunities and threats or at least to judge their probability (Ritchie & Crouch, 2003).

The existing models of destination competitiveness provide a framework for determining the competitiveness of a destination at national or sub-national level. However, they are not yet capable of determining destination competitiveness in the context of a particular component of tourism such as the hot springs tourism sector. Tourism destinations share a common, basic anatomy, but are heterogeneous (Howie, 2003). This is also the case for destinations with hot springs attributes and there is a need to develop a sector-specific destination competitiveness model to extend the literature. The premise of the proposed model is that, to balance sustainability and competitiveness, the supply component of a hot springs destination must be aligned to changes in the external environment through the formulation and implementation of tourism destination strategies.

Research Design

The Analytic Hierarchy Process (AHP)

The present study proposes an evaluation framework to assess the potential and competitiveness of Taiwan's hot springs tourism sector. Destinations are complex systems and there are many influences on the quality of the hot springs visitor experience and whether destination competitiveness is achieved. The influence of each element will differ. Collectively, the various elements influence expectations to different degrees (Deng, King, & Bauer, 2002). The AHP provides a means of prioritizing the various elements in the hierarchy, thus helping governments and industry practitioners to focus on the most important issues (Cheng & Li, 2002). Since its development by Saaty in the 1970s (Saaty, 1980), AHP has been widely used in industry settings, though rarely in tourism (Crouch & Ritchie, 2005). The method incorporates both qualitative and quantitative research within a single empirical inquiry (Cheng & Li, 2001; Cheng, Li, & Ho, 2002). It is a problem-solving framework and a systematic procedure that represents the various elements of a problem in hierarchical form (Saaty & Kearns, 1985). It provides a rationale by dividing a problem into its constituent parts and calling for simple pairwise comparison judgments to develop priorities at each level in the hierarchy.

The AHP approach involves three basic steps: (1) decomposition, or the construction of the hierarchy; (2) comparative judgments, or defining and

executing data collection to obtain pairwise comparative data on elements of the hierarchical structure; and (3) synthesis of priorities, or construction of an overall priority rating (Harker & Vargas, 1987). During the first step, the various problems are decomposed into their component parts and then rearranged into a hierarchy. Once the hierarchy has been constructed, the elements at the same level are compared in pairs with respect to a parent element in the level immediately above. The values of the pairwise comparisons in the AHP are determined on the basis of the Saaty (1980) scale. The available values for the pairwise comparisons are members of the discrete set: {9, 8, 7, 6, 5, 4, 3, 2, 1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 1/9} (see Table 1). The inconsistency ratio (IR) is used to check the consistency and reliability of the judgments. Inconsistencies may arise when respondents make careless errors or exaggerated judgments. An inconsistency ratio of 0.1 is considered to be the acceptable upper limit. If an inconsistency ratio exceeds 0.1, participants are asked to reevaluate their judgments in a pairwise matrix until an IR of less than 0.1 is achieved (Saaty, 1980). In the present study, the AHP approach was used to determine the relative weights of the preidentified determinants of destination competitiveness and to evaluate the competitiveness of Taiwan's hot springs tourism sector relative to its competitors. The steps are summarized as follows.

Establishing a Hierarchy Evaluation Structure

The first step of the AHP involves the development of a hierarchical structure to deconstruct a complicated problem into several integrated dimensions (components or elements). In the present study, a three-round Delphi study was conducted to validate the literature-based determinants of destination competitiveness and to accommodate necessary adjustments. The Delphi study generated a list of 38 determinants of destination competitiveness, based on the consensus criteria that are outlined below: the mean score is above the average of 4.16 and 80% of responses fall within two rating points on a 5-point Likert-type scale (Lee & King, 2009). The Delphi study confirmed the validity of the proposed model, prompting the development of a four-level hierarchical structure, with 49 nodes. This is outlined in Figure 1. Each level of the hierarchy is limited to seven elements, which keeps the evaluation workload to a manageable level (Saaty, 1980).

The overall goal occupies the top level of the hierarchy: to develop a framework for evaluating the potential of the hot springs tourism sector with

Table 1
Pairwise Comparisons

Intensity of Relative Importance	Definition	Explanation
1	Equal importance	Two activities contribute equally to objective
3	Moderate importance of one over another	Experience and judgment slightly favor one over another
5	Essential or strong importance	Experience and judgment strongly favor one over another
7	Demonstrated importance	An activity is strongly favored and its dominance is demonstrated in practice
9	Extreme importance	The importance of one over another affirmed on the highest possible order
2,4,6,8	Intermediate values between the two adjacent judgments	Used to represent compromise between the priorities listed above
Reciprocals of the above nonzero numbers	Reciprocal for inverse comparison	If activity *i* has one of the above nonzero numbers assigned to it when compared with activity *j* has the reciprocal value when compared with *i*

Source: Adopted from Saaty (1980).

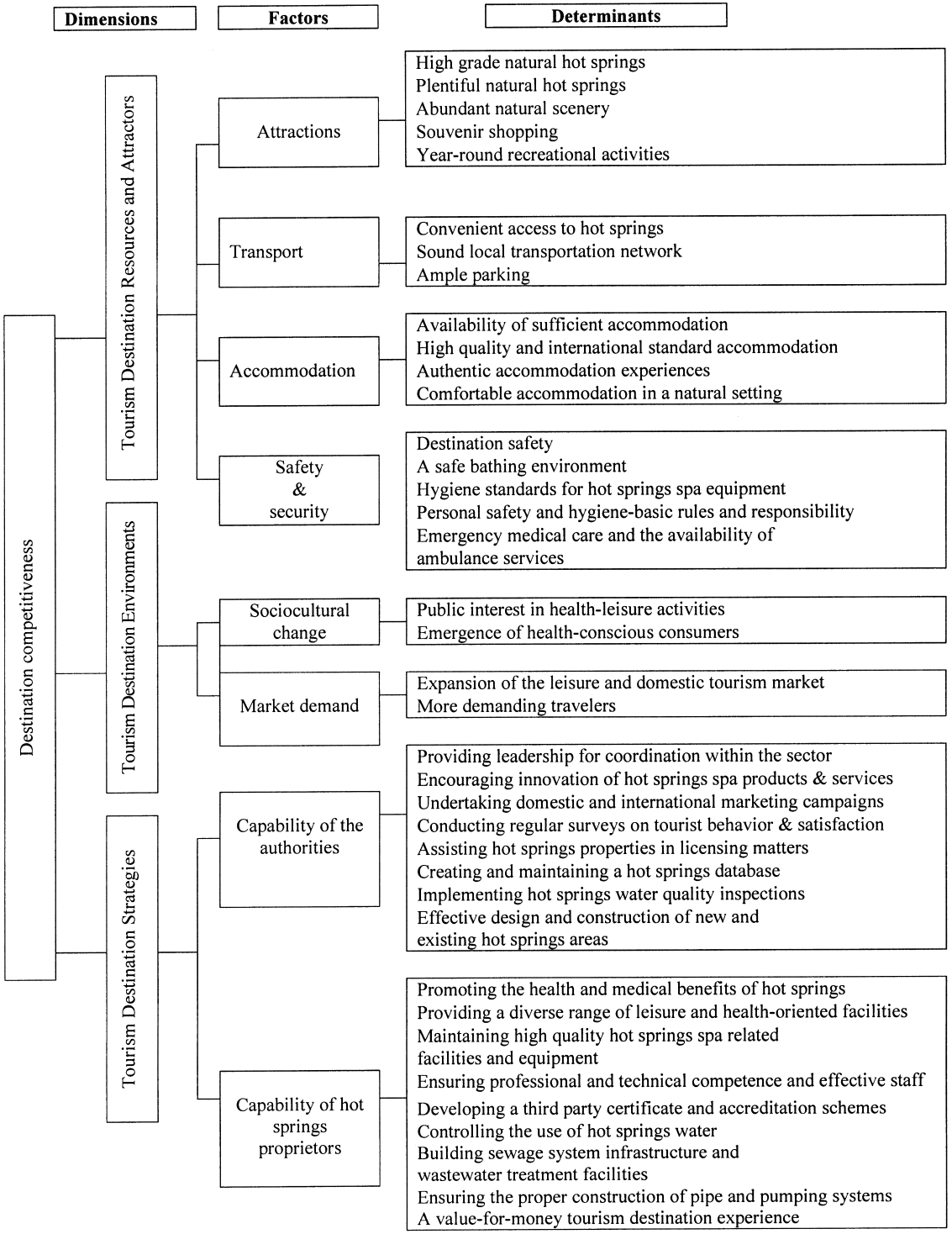

Figure 1. The hierarchy of elements determining competitiveness.

weights corresponding to the full range of determinants of destination competitiveness. Beneath the overall goal, the second level represents the three major dimensions which determine the potential and competitiveness of the hot springs tourism sector, including *tourism destination resources and attractors*, *tourism destination strategies*, and *tourism destination environments*. At the third level of the hierarchy, the three dimensions have been subdivided. The dimension tourism destination resources and attractors consist of natural and man-made tourism resources and attractions that complement the hot springs soaking experience. It is subsequently decomposed into four factors: *attractions*, *transport*, *accommodation*, and *safety and security*. Tourism destination strategies refer to the commitment by government and industry: *capability of the authorities* and *capability of hot springs proprietors*. The dimension tourism destination environments consists of macro- and microlevel growth drivers and is subdivided into two components: *sociocultural change* and *market demands*. Finally, the various determinants or attributes associated with each factor in the third level are linked to the fourth level. As outlined in Figure 1, the fourth level consists of 38 determinants.

Prioritization Procedure

The next step of the research involved the prioritization of the various elements at each level.

Sample Design and Administration. A review of the relevant research (Faulkner et al., 1999; Gearing et al., 1974; Hudson et al., 2004) indicates that tourism competitiveness is usually assessed from a supply-side perspective (e.g., governments at all levels, hotel and tourism associations, travel agencies, and tour operators). In the current study, three panels were established to ensure the incorporation of applied as well as theoretical inputs. Prospective participants were selected on the basis of predetermined criteria. The tourism industry grouping consisted of participants in the hot springs tourism sector, with a minimum of 5 years of professional experience and membership of a relevant tourism association. Public sector participants should have a minimum of 5 years of professional experience in a decision-making capacity within a government-related tourism organization. Academic participants had a minimum of 5 years of university tourism teaching experience, evidence of publications relevant to Taiwan's hot springs tourism sector, and an interest in health and wellness tourism research.

The snowball sampling approach was used, based on referrals from initial participants to generate additional respondents. Although subject to a degree of bias, this method is an appropriate method for gathering information from individuals who exhibit particular characteristics or knowledge, but are difficult to locate and contact (Cavana, Delahaye, & Sekaran, 2001). A mail survey was administrated between December 2008 and January 2009, preceded by a telephone conversation to establish rapport and to secure participation.

A survey was administrated with 24 government officers, hot springs proprietors, and scholars for the purpose of collecting pairwise comparison data. The response rate was about 80% (19). As noted by Cheng et al. (2002), small samples are acceptable from the AHP methodology perspective. The AHP is a subjective method that does not require a large number of participating experts. The opinions of a small group of key informants are generally sufficient to generate reliable and useful results, albeit only providing rough estimates. The response rate was deemed to be sufficient. Table 2 summarizes participant demographic characteristics.

Questionnaire Development. The survey consisted of three sections. The first required participants to assess the relative importance of three dimensions, eight factors, and 38 determinants of destination competitiveness. Participants were asked to choose between various pairs of statements. To elicit the importance of *tourism destination resources and attractors* versus *tourism destination strategies*, the following statements were presented to each participant:

When evaluating the potential and competitiveness of the hot springs tourism sector, *tourism destination resources and attractors* are

- equally as important as
- moderately more important/moderately less important than

Table 2
Profile of Participating Experts

Characteristics	*N*	%
Field of work		
Goverment official	7	0.37
Hot springs proprietor	5	0.26
Academic	7	0.37
Experience (years)		
At least 5	3	0.16
6–10	2	0.11
11–15	5	0.26
16–20	4	0.21
21–25	4	0.21
25 and above	1	0.05
Age (in years)		
31–35	2	0.11
36–40	2	0.11
41–45	8	0.42
46–50	1	0.05
51 and above	6	0.32
Education		
High school	0	0
College/university	6	0.32
Graduate	13	0.68

- considerably more important/considerably less important than
- emphatically more important/emphatically less important than
- extremely more important/extremely less important than

Tourism Destination Strategies. Responses on the left indicate a prioritization of the first dimension over the second, while responses on the right assert the importance of the second dimension over the first. In the Saaty (1980) scale shown in Table 1, the five statements correspond respectively to importance weightings of 1, 3, 5, 7, and 9.

In section two, participants rated Taiwan's hot springs tourism sector with competitors across each of 38 determinants under the three major headings on a 5-point Likert-type scale. The options provided ranged from 1 (well below average/much worse) to 5 (well above average/much better). The major competitor for Taiwan's hot springs tourism sector was self-selected by participants from a range of Asian destinations offering equivalent tourism products. The reason for nominating a competing destination was to provide an Asia-Pacific comparative benchmark. It would have been meaningless to ask participants to rate a particular destination on any determinant of destination competitiveness outside a comparative framework (Dwyer, Livaic, & Mellor, 2003). Destinations are not competitive or uncompetitive in the abstract, but versus competitors, and it is important to determine the competitive set (Kozak & Rimmington, 1999). Previous studies have presented a variety of mechanisms to compare destination competitiveness (Dwyer et al., 2003; Enright & Newton, 2004; Hudson et al., 2004; Kozak & Rimmington, 1999). For the purposes of the present study, identification of a single competitor within the Asia-Pacific region was considered to be sufficient for comparative purpose. It also helped to reduce the duration of the survey. The final section examined respondent demographics.

Data Analysis and Synthesis

Following inputs from the panel of experts, normalized weighting priorities were established for the hierarchy of elements within the AHP model using the *Expert Choice* software package. Participant comparisons were entered into *Expert Choice* allowing the researchers to check the consistency of individual responses and abstract weightings for each element. *Expert Choice* provided normalized local and global weightings for all elements at each level of the hierarchy. Inconsistency ratios were generated for each matrix. The results indicated that all inconsistency ratios are 0.02 or lower (see Table 3), thus satisfying the threshold of 10% inconsistency proposed by Saaty (1980). It also confirmed the consistency and reliability of the expert judgments.

Results and Findings

Results Obtained From the AHP Analysis

An examination of the weightings rated in Table 4 reveals that *tourism destination strategies* (0.431) is the major contributor to the potential and competitiveness of the hot springs sector, followed by *tourism destination resources and attractors* (0.321). *Tourism destination environments* (0.248) was the least important dimension. The top three ranking factors are: *capability of tourism enterprises* (0.253), *capability of the authorities* (0.178), and *market demand* (0.165). The

Table 3
Consistency Test for the Determinants of Destination Competitiveness

Level	Inconsistency Ratio	Consistency Test
Objective	0.00	accepted
Dimensions		
Tourism destination resources and attractors	0.01	accepted
Tourism destination strategies	0.00	accepted
Tourism destination environments	0.00	accepted
Factors		
Attractions	0.01	accepted
Transport	0.02	accepted
Accommodation	0.00	accepted
Safety and security	0.01	accepted
Capability of the authorities	0.01	accepted
Capability of hot springs proprietors	0.00	accepted
Sociocultural change	0.00	accepted
Market demand	0.00	accepted

top five ranked attributes are: *more demanding travelers* (0.096), *expansion of the leisure and domestic tourism market* (0.069), *emergence of health-conscious consumers* (0.046), *public interest in health-leisure activities* (0.037), *effective design and construction of new and existing hot springs areas* (0.036), and *building sewage system infrastructure and wastewater treatment facilities* (0.036). The five lowest ranking attributes are: *availability of sufficient accommodation* (0.006), *conducting regular surveys on tourist behavior and satisfaction* (0.009), *destination safety* (0.012), *personal safety and hygiene—basic rules and responsibility* (0.014), *high quality and international standard accommodation* (0.015), *authentic accommodation experiences* (0.015), and *emergency medical care and the availability of ambulance services* (0.015).

The key findings of the AHP analysis may be summarized as follows. First, tourism destination strategies underpin the competitiveness of the hot springs tourism sector. This is consistent with Dwyer et al.'s argument (2004) that destination strategies are crucial for the success of the tourism industry. Tourism destination strategies should be viewed as processes and actions which enhance the appeal of the core resources and attractors, strengthen the quality and effectiveness of the various supporting factors, and minimize any constraints imposed by the qualifying determinants (Crouch & Ritchie, 1999). Successful implementation of destination strategies helps create a unique system of tourism products to address the needs of different categories of visitor and ensures sustainable growth, combining private profit and general economic development with the preservation of the host community's identity and quality of life (Manente & Cerato, cited in Manente & Minghetti, 2006). Second, destination competitiveness can be enhanced through public and private sector participation and involvement. While the principal task of hot springs enterprises is to build and renovate their existing sewage and wastewater infrastructure, the responsibility of government should be to establish hot springs demonstration sites that exemplify best practice, improve environmental sustainability, and minimize environmental damage. However, hot springs are now acknowledged as a significant tourism attraction in Taiwan. Incorporation of sustainability principles into both enterprise-level operation and government-level destination planning, policy, and development is viewed as an essential tool to strengthen and expand its international reach and competitiveness.

Finally, the introduction of the 2-day weekend entitlement for Taiwanese residents in 2001 increased the availability of leisure time and promoted changes in lifestyle expenditures. The Taiwanese are becoming more sophisticated, demanding, and aware of the need to maintain good health through tourism and recreation. These favorable conditions and incentives expand the prospective application of natural hot springs into the fields of health promotion and medical treatment. Internationally, hot springs tourism has generally been regarded as health oriented (Matsushita, 1994). The ongoing prosperity of the sector is tied closely to the increasing consciousness of personal health issues. Competitiveness relies on increasing domestic demand, and its future appears promising.

Descriptive Results

According to the survey respondents, Japan was the most competitive Asian destination for hot

Table 4
Element Weights to Determine Destination Competitiveness

Dimension/Factor	Local/ Global Weights	Local Weights	Global Weights	Ranking	Determinants of Destination Competitiveness	Local Weights	Global Weights	Ranking
Tourism destination resources & attractors	0.321							
Attractions		0.320	0.103	4	High-grade natural hot springs	0.176	0.018	27
					Plentiful natural hot springs	0.170	0.017	29
					Abundant natural scenery	0.242	0.025	17
					Souvenir shopping	0.194	0.020	23
					Year-round recreational activities	0.219	0.022	22
Transport		0.223	0.071	7	Convenient access to hot springs	0.365	0.026	14
					Sound local transportation network	0.318	0.023	20
					Ample parking	0.317	0.023	20
Accommodation		0.172	0.055	8	Availability of sufficient accommodation	0.102	0.006	38
					High quality and international standard accommodation	0.273	0.015	32
					Authentic accommodation experiences	0.275	0.015	32
					Comfortable accommodation in a natural setting	0.350	0.019	25
Safety & security		0.286	0.092	5	Destination safety	0.131	0.012	36
					A safe bathing environment	0.292	0.027	12
					Hygiene standards for hot springs spa equipment	0.265	0.024	18
					Personal safety and hygiene—basic rules and responsibility	0.151	0.014	35
					Emergency medical care and the availability of ambulance services	0.161	0.015	32
Tourism destination environments	0.248							
Sociocultural change		0.333	0.082	6	Public interest in health-leisure activities	0.443	0.037	4
					Emergence of health-conscious consumers	0.557	0.046	3
Market demand		0.667	0.165	3	Expansion of the leisure and domestic tourism market	0.416	0.069	2
					More demanding travelers	0.584	0.096	1
Tourism destination strategies	0.431							
Capability of the authorities		0.413	0.178	2	Providing leadership for coordination within the sector	0.113	0.020	23
					Encouraging innovation of hot springs spa products & services	0.091	0.016	31
					Undertaking domestic and international marketing campaigns	0.101	0.018	27
					Conducting regular surveys on tourist behavior & satisfaction	0.052	0.009	37
					Assisting hot springs properties in licensing matters	0.182	0.032	8
					Creating and maintaining a hot springs database	0.097	0.017	29
					Implementing hot springs water quality inspections	0.162	0.029	11
					Effective design and construction of new and existing hot springs areas	0.202	0.036	5
Capability of hot springs proprietors		0.587	0.253	1	Promoting the health and medical benefits of hot springs	0.073	0.019	25
					Providing a diverse range of leisure and health-oriented facilities	0.093	0.024	18
					Maintaining high-quality hot springs spa-related facilities and equipment	0.122	0.031	9
					Ensuring professional and technical competence and effective staff	0.118	0.030	10
					Developing a third party certificate and accreditation schemes	0.104	0.026	14
					Controlling the use of hot springs water	0.137	0.035	7
					Building sewage system infrastructure and wastewater treatment facilities	0.142	0.036	5
					Ensuring the proper construction of pipe and pumping systems	0.107	0.027	12
					A value-for-money tourism destination experience	0.103	0.026	14

springs and spa tourism and the principal competitor for Taiwan. Japan has abundant natural hot springs and hot springs are intrinsic to Japanese culture. The centuries-old tradition of hot springs and onsen bathing has made Japan a leading spa tourism destination. During Taiwan's occupation by the Japanese prior to 1945, many hot springs facilities were built in Japanese style and adopted the Japanese hot springs bathing traditions and manners. This legacy is still evident in some of Taiwan's oldest and finest hot springs regions. In this historical context and given growing international competition, a comparison of the relative performances of the hot springs tourism sector in Taiwan and Japan is timely.

The competitiveness rating for Taiwan's hot springs tourism sector (final score = 2.84) was lower than for Japan (final score = 4.16) and was below neutrality (<3 on a scale of 1–5). The more salient findings in Table 5 are highlighted. It is noted that Taiwan has performed less effectively than Japan on the three measures of destination competitiveness. The lowest rating applied in the case of *tourism destination strategies* (weighted mean = 2.45). All of the determinants originating from the dimension *tourism destination strategies* rated lower than the neutral score of 3. These findings are not surprising in view of the absence of regulations to oversee enterprise-level operations and of legislation to protect the use of water within the hot springs areas. These human resource and strategic capacity related problems need urgent resolution if Taiwan's hot springs tourism sector is to develop and prosper. In contrast, Japan is rated above 4 on each of the three major dimensions. The most favorably rated dimension was *tourism destination environments* (weighted mean = 4.54). Japan has a long history of communal bathing and visiting hot springs is a major highlight of travel within Japan. Increasing public awareness of the value of leisure and recreation for health and wellbeing has created favorable conditions for the further development of hot springs and spa tourism in Japan (Matsushita, 1994).

The only item where Taiwan recorded a higher score than Japan and received the highest weighted mean among the 38 determinants (weighted mean = 4.13) was *high-grade natural hot springs*. Given that Taiwan has one of the highest concentrations and greatest variety of hot springs in the world, this is not surprising. The three lowest ranked determinants were *assuring the proper construction of pipe and pumping system* (mean = 1.77), *building sewage system infrastructure and wastewater treatment facilities* (mean = 1.90), and *controlling the use of hot springs water* (mean = 2.01). These relate to the capability of hot springs proprietors to protect, conserve, and manage the environment and natural resources in compliance with the principles of sustainability. It is suggested that an environmental management self-regulation mechanism would be a useful addition to the daily practices of hot springs proprietors. Many proprietors have an exclusive focus on the maximization of short-term profitability. The effects of their actions on local communities and the environment, and their responsibility to customers are ignored. Currently, there is no direct regulation of hot springs spa operations, though there is a strong case for a more active regulation of such activities.

Significant differences are evident between the weight means for Taiwan and Japan. These include *controlling the use of hot springs water*, *building sewage system infrastructure and wastewater treatment facilities*, *ensuring the proper construction of pipe and pumping system*, and *authentic accommodation experiences*. Taiwan's greatest weaknesses are the capacity of its hot springs proprietors to minimize environmental damage and comply with environmental sustainability standards. Japan's Hot Springs Law (1948) prescribes a definition for hot springs to be recognized as an onsen. Compliant onsen operators who contribute to regional economic development are eligible for subsidies (Matsushita, 1994). To match Japan's accomplishments, Taiwan will need a collaborative government and industry mechanism to pursue longer term sustainability.

Conclusions and Managerial Implications

Hot springs tourism is an emerging sector in Taiwan and in this context, it is particularly important to develop a guiding framework based of destination competitiveness from a supply-side perspective. The relative importance of destination competitiveness has been evaluated using three

Table 5
Comparative Destination Weights for Taiwan and Japan

		Taiwan		Japan	
	Weight	Mean	Weighted Mean	Mean	Weighted Mean
Tourism destination resources and attractors		**2.94**	**3.01**	**4.07**	**4.17**
Attractions		3.24	3.30	4.14	4.23
High grade natural hot springs	0.018	4.06	4.13	4.00	4.07
Plentiful natural hot springs	0.017	3.78	3.84	4.00	4.07
Abundant natural scenery	0.025	3.83	3.89	4.28	4.39
Souvenir shopping	0.020	2.28	2.33	4.22	4.30
Year-round recreational activities	0.022	2.28	2.33	4.22	4.31
Transport		2.89	2.96	3.83	3.93
Convenient access to hot springs	0.026	3.17	3.25	3.89	3.99
Sound local transportation network	0.023	2.89	2.96	3.94	4.03
Ample parking	0.023	2.61	2.67	3.67	3.75
Accommodation		2.63	2.66	4.21	4.27
Availability of sufficient accommodation	0.006	2.83	2.85	3.89	3.91
High quality and international standard accommodation	0.015	2.83	2.87	4.44	4.51
Authentic accommodation experiences[a]	0.015	2.33	2.37	4.33	4.40
Comfortable accommodation in a natural setting	0.019	2.50	2.55	4.17	4.25
Safety and security		2.98	3.03	4.11	4.19
Destination safety	0.012	4.00	4.05	4.17	4.22
A safe bathing environment	0.027	3.11	3.19	4.28	4.40
Hygiene standards for hot springs spa equipment	0.024	2.50	2.56	4.28	4.38
Personal safety and hygiene—basic rules and responsibility	0.014	2.50	2.54	4.17	4.23
Emergency medical care and the availability of ambulance services	0.015	2.78	2.82	3.67	3.73
Tourism destination strategies		**2.40**	**2.45**	**3.97**	**4.08**
Capability of the authorities		2.50	2.56	3.90	3.99
Providing leadership for coordination within the sector	0.020	2.44	2.49	3.94	4.02
Encouraging innovation of hot springs spa products & services	0.016	2.56	2.60	3.94	4.00
Undertaking domestic and international marketing campaigns	0.018	2.94	2.99	4.11	4.18
Conducting regular surveys on tourist behavior & satisfaction	0.009	2.17	2.19	3.11	3.14
Assisting hot springs properties in licensing matters	0.032	2.17	2.24	3.72	3.84
Creating and maintaining a hot springs database	0.017	2.39	2.43	4.33	4.40
Implementing hot springs water quality inspections	0.029	2.78	2.86	3.94	4.05
Effective design and construction of new and existing hot springs areas	0.036	2.56	2.65	4.11	4.26
Capability of hot springs proprietors		2.30	2.36	4.04	4.16
Promoting the health and medical benefits of hot springs	0.019	2.61	2.66	4.33	4.41
Providing a diverse range of leisure and health-oriented facilities	0.024	2.44	2.50	4.28	4.38
Maintaining high-quality hot springs spa-related facilities and equipment	0.031	2.72	2.80	4.00	4.12
Ensuring professional and technical competence and effective staff	0.030	2.50	2.58	4.11	4.23
Developing a third party certificate and accreditation schemes	0.026	2.44	2.50	4.00	4.10
Controlling the use of hot springs water[a]	0.035	1.94	2.01	4.17	4.32
Building sewage system infrastructure & wastewater treatment facilities[a]	0.036	1.83	1.90	3.83	3.97
Ensuring the proper construction of pipe and pumping systems[a]	0.027	1.72	1.77	3.83	3.93
Ensuring a value-for-money in tourism destination experience	0.026	2.50	2.57	3.83	3.93
Tourism destination environments		**3.52**	**3.67**	**4.22**	**4.54**
Sociocultural change		3.53	3.67	4.36	4.42
Public interest in health-leisure activities	0.037	3.44	3.57	4.28	4.44
Emergence of health-conscious consumers	0.046	3.61	3.78	4.44	4.64
Market demand		3.50	3.79	4.08	4.48
Expansion of the leisure and domestic tourism market	0.069	3.56	3.81	4.00	4.28
More demanding travelers	0.096	3.44	3.77	4.17	4.54
Final score		**2.76**	**2.84**	**4.06**	**4.16**

[a]The weighted mean difference between two destinations exceeded.

headings, namely *tourism destination resources and attractors*, *tourism destination strategies*, and *tourism destination environments*. The present study supplements the current literature on tourism destination competitiveness by integrating the three categories of destination competitiveness which have been prominent in previous models (Dwyer & Kim, 2003; Enright & Newton, 2004; Ritchie & Crouch, 2000, 2003). It is acknowledged that each subsector has unique features and attributes and its own set of competitive factors. The sector-specific model of destination competitiveness that has been proposed in this research is capable of capturing the nature and characteristics of the hot springs tourism sector and is well suited for purposes of comparison. It has been demonstrated that the AHP method is an appropriate method for generating insights that could form a basis for enhancing the competitiveness of Taiwan's hot springs tourism sector. Taiwan is a collectivist culture with an emphasis on the pursuit of harmony with others (Hofstede, 1980). On this basis, the AHP method may accommodate the diverse opinions of individual participants and avoid the dominance of any individual or small group. Participants in the current survey had an equal voice. The AHP also accommodated the geographically dispersal of participants (Armacost, Hosseini, & Edwards, 1999). Previous AHP applications have been confined to destinations at a generic level (Crouch, 2008; Crouch & Ritchie, 2005). The present study shows the merit of applying the AHP approach for analyzing destination competitiveness in the context of hot springs as an important subsector of tourism. It contributes to knowledge by extending the application of AHP to destination competitiveness as it applies to subsectors of tourism.

To test the applicability of a sector-specific destination competitiveness model, Japan was chosen as a benchmark for comparison purposes. The comparative analysis has shown that Taiwan is less competitive than Japan in all fields with the exception of high-grade natural hot springs. The findings reveal potential areas for improvement if Taiwan's authorities and enterprises are to boost competitiveness and narrow the gap with Japan. The application of a comparative study in the context of a subsector of tourism, namely hot springs tourism, provides an extension of the current literature on the relative competitiveness of tourism destinations (Dwyer et al., 2003; Enright & Newton, 2004; Kozak & Rimmington, 1999). Implications are drawn for government and industry with a view to increasing visitations. Taiwan currently rates low in the context of competitiveness, but addressing this deficiency rates high in terms of importance.

A Focus on Preventative and Curative Care

In the context of an expanding pool of consumers who have the time, money, and motivation to pursue and maintain a healthy life, the diversity and smoothness of mineral springs has been a significant advantage for tourism provision in Taiwan. The use of natural hot springs for the treatment of disease constitutes another potential market segment. There is a business opportunity for resort proprietors to market the medicinal and therapeutic benefits of hot springs bathing to health-conscious consumers who are seeking to enhance their well-being through travel. To achieve this, proprietors should refresh their preventative and health-oriented services and facilities. Diversification of product offerings and tourist activities is also needed. The Taiwan government could assist by establishing a research entity dedicated to hot springs sector and supporting the development of a national database. Hot springs treatments are as diverse as the waters themselves. A database could inform the public about the location of relevant hot springs, and about their health and tourism attributes. In some European countries, skin disease sufferers who are in receipt of health insurance-funded prescription are entitled to receive spa treatments. If Taiwan's national health insurance system were to subsidize spa treatments, it would enhance the appreciation of the therapeutic and curative effects of hot springs and extend their use into the medical field.

Sustainability Principles

Tourism development associated with the growth in visitation to hot springs has impacted on the natural environment. If Taiwan is to achieve an appropriate balance between protecting resources and stimulating tourism development, stakehold-

ers at both the national and the enterprise level will need to engage actively with environmental management issues and engage in partnerships. The national authorities are responsible for formulating and implementing tourism policy and for developing strategies consistent with the sustainable use of lands, hot springs, and other natural resources. An effective and principled system of deterrence is needed involving fines for the illegal use of lands and hot springs. Destination management organizations should work with independent third parties to promote and endorse the implementation of sustainable water resource management and environmental protection practices. Hot springs proprietors should incorporate sustainability principles within the design and construction of spring water distribution, sewage treatment, wastewater collection, and piping and pumping systems. Sustainable tourism development is predicated upon responsible behaviors by stakeholders within the hot springs tourism sector, to ensure the long-term prosperity and quality of life for future generations.

Limitations and Opportunities for Future Research

This investigation has prompted a number of questions and various areas of potential study are evident. The proposed destination competitiveness model should have international applicability, especially in emerging Asian destinations similar to Taiwan. Additional validation of the proposed framework should be undertaken. Second, the proposed hot springs competitiveness model is generic. Given time and cost constraints, all key informants in the present study were Taiwanese. Respondents may tend to exaggerate the competitiveness of their own country relative to others (Dwyer et al., 2003). The limited knowledge and practical experience of informants about Japan as a competitor may have compromised the comparison. Future studies should extend the range of international and local perspectives. Thirdly, the present study has explored the managerial perspective towards competitiveness factors associated with Taiwan as a hot springs tourism destination. Given the importance of consumer perceptions, it would be useful to incorporate hot springs visitors in future research to compare the demand and supply-side perspectives. Finally, the study brings together the various concepts of destination competitiveness and identifies sector-specific strategies, environmental factors, and unique destination attributes as major constructs. These insights could be further extended by examining the interplay between internal and external factors as they influence the formulation and implementation of destination strategies in the pursuit of competitiveness.

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