ABSTRACT

This study uses the lifestyles of tourists as a segment variable with which to discuss the difference in tourists’ travel consumption behaviors in hot spring areas under different market segments. Second, the study applies travel cost method (TCM) to define the value of the recreational benefit of Ku-Kwang Hot Spring Park. The derived compensating variation (CV) value and equivalent variation (EV) value are 38.95 USD and 37.46 USD respectively. Compared with the average travel cost of our sample (29.53 USD), the benefit value of Ku-Kwang Hot Spring Park was much higher. Similar methods could be applied to compare other relevant similar recreational areas.

INTRODUCTION

As a result of an enhanced standard of living, people in Taiwan have begun to appreciate the value of recreational activities. This recognition has boosted the development of the recreational service industry and made Taiwan one of the leading service countries. In 2005, the production value of Taiwan’s service industry reached US$231 billion, or 73% of GDP. The GDP figure is higher than that of Singapore (63%) or South Korea (55%). In 2008, the production value of Taiwan’s service industry is expected to reach US$288 billion, or 74% of GDP (Economic Development Commission, 2006). Since 1999, “Taiwan Hot Springs Tourism Year,” the hot springs bath, which incorporates the benefits of recreation and healthcare, has become a vital part of the tourism industry in Taiwan.

When investing in the hot springs industry, enterprises have often neglected to consider the differences among consumers in terms of their psychological characteristics and behavioral preferences, with the result that many hot springs areas of similar quality are highly redundant and forgettable. This study attempts to determine whether lifestyle fits the role of a market segment variable and helps enterprises determine the needs, preferences and consumption behaviors of different customer groups by understanding their vacation lifestyles. Based on the findings, enterprises may plan recreational environments that better meet their customers’ demands, so customers’ travel satisfaction and willingness to revisit will be enhanced, and development of local tourism will be furthered as the content and quality of visits improve.

Because there is rarely an observable market price for most of the recreational resources, we are unable to reflect economic value through regular market models. Instead, we monetize the economic value of recreational resources via the no-market-goods-evaluation methods, including the Hedonic Pricing Method (HPM), the Travel Cost Method (TCM) and the Contingent Valuation Method (CVM). According to the purpose of the study, CVM establishes a virtual market and uses hypothetic questions to help identify respondents’ economic benefits. Related literature includes Carson et al. (2002), Del Saz-Salazar and Montagud-Marques (2002), Maddison and Mourato (2002), Mourato et al. (2002) and Navrud and Strand (2002). Based on visitors’ travel times and costs, TCM obtains visitors’ recreational demand function, then estimates the economic benefits of the recreational area. Related literature includes Boxall et al. (2002) and Garrod et al. (2002). Implementation of HPM is extremely difficult because it requires collecting large amounts of local information on recreational resources characteristics beforehand. Therefore, there is a lack of literature on assessment of the economic value of recreational resources through HPM. As a result, this study attempts to evaluate the economic benefits of the Ku-Kwang Hot Spring Park area to tourists via TCM.
This study first uses the lifestyles of tourists as the segment variable to discuss the difference in tourists’ travel consumption behaviors in hot spring areas based on different market segments. Second, through TCM, the study aims to estimate the recreational benefits of hot spring areas from data contributed by tourists. Finally, based on the results and analyses, this study aims to provide a reference for related governmental agencies in their planning and decision-making regarding hot spring resources with the goal of sustainable utilization of the hot spring resources.

LITERATURE REVIEW

Lifestyle

The concept of life style results from related research in the fields of psychology and sociology, which has been applied to the field of marketing since the 1960s (e.g., Lazer, 1963) to study consumers’ purchasing behaviors. Lazer contended that “life style is a systematic concept, representing the characteristic of a life pattern in one particular social or community strata, where these characteristics vary with other social communities. And various life pattern is resulted from influences which are variable based on each dimension of culture, value concept, resource, belief, and law, etc.” Andreason (1967) commented that "life style is a concept of social science, a summary of particular individual behavior or integrated behavior of a community, meaning that it’s a problem of arrangement, i.e., the time-schedule arrangement for various individuals or communities with various activities while under the particular circumstance with a limited time and resource". According to Reynold and Darden’s definition (1974), life style is measured mainly by three dimensions: Activity (A), Interest (I), and Opinion (O), the so-called AIO scale. Plumer (1974) emphasized that life style contains population statistical variables as well as the diverse mental characteristics. He added population statistical variables into life style so as to build four dimensions: activity, interest, opinion and population statistic variables. Engel, Blackwell and Miniard (1993) emphasized that "life style is the way people live, time-usage, and using money, which is a reflection of a personal activity, matters of interest, and opinions on various subjects". Zins (1998) utilized the life style variable to produce market segmentation for resort hotel consumers in order to study the consumers’ behavior in electing a theme hotel. Finally, Hawkins, Best and Coney (2001) suggested that "life style is related to how we live, which is a concrete performance of ego-concepts, resulting from past experience, internal characteristic and current circumstance commonly, where it is applicable to affect each dimension of consuming behavior”.

This study adopted the lifestyle variables developed by Zins (1998) to discuss the variances in tourists’ travel consumption behaviors in different market segments. Then we analyzed socio-economic background and travel consumption behavior by groups in order to compare the recreational benefits of Ku-Kwang Hot Spring park in individuals with different lifestyles.

Establishment of TCM Model Framework

TCM assesses the value of non-market goods through observing consumers’ travel behavior. The value of recreational resources is set according to travel expenses, such as transportation expenditure, admission tickets and service charges to the scenic areas. The goal function of the TCM model’s theoretic framework is maximization of personal benefit. The currency and time factors are processed via the constraint function. Assuming the recreational choice of the consumer is a short-term choice under long-term worker recreation conditions, the wage can be seen as the shadow price of recreation for estimating the opportunity. On this basis, the theoretic model of TCM can be expressed as follows:

$$\text{Max} \ U(Z, q)$$

s.t. \ $Y = Z + pq$  \ (1)

In the equation, $Y$ represents the consumer’s household annual income, $q$ is the traveling frequency per year, $Z$ represents the composite goods, and we assume the unit price equals 1. The last factor, $p$, is the per-person traveling cost. If the general demand function is named $q_i$, we use $g(X_i, \beta)$ to substitute the equation $q_i = g(X_i, \beta) + \eta_i$, where $\eta_i$ is the normal distribution and $g(X_i, \beta)$ represents the maximized solution of interviewers’ traveling frequency. Then the traveling demand function (2) of visitors to the Ku-Kwang Hot Spring Park is obtained by taking the first derivative of $g(X_i, \beta)$:
\[ q_i = g(X_i, \beta) + \eta_i = g(Y, TC, ...) \] (2)

If we assume \( q_i \) is the linear function of \( X_i \), constrain \( Y = Z + pq \) is given in which \( Y \) represents income and \( p \) is the price of product \( q \). In other words, \( p \) is the traveling cost to visit the Ku-Kwang Hot Spring Park. Therefore, we can find a solution by applying the Lagrangian Multiplying method \( U(Z, q) = a \log Z + (1 - a) \log(q + 1) \) to \( g(X_i, \beta) \) in equation (3).

\[
L = a \log(y - pq) + (1 - a) \log(1 - \lambda(y - z - pq))
\]

\[
L_z = a \frac{1}{z} + \lambda = 0
\]

\[
L_q = (1 - a) \frac{1}{q} + p = 0
\]

\[
L\lambda = -(y - z - pq) = 0
\]

\[
\frac{a}{1 - a} = \frac{1}{p}
\]

\[
q = g(x_i, \beta) = \arg \max a \log(y - pq) + (1 - a) \log(q + 1) = (1 - a) \left( \frac{y}{p} \right) - a
\] (3)

Since the demand function of variable \( q \) is the normal distribution likelihood function, we can obtain the equation (4) by Logarithmic the demand function:

\[
\log L = -\frac{n}{2} \log(2\pi) - n \log \nu - \frac{1}{2} \sum_{i=1}^{n} \left[ \log \left( \frac{q_i - g(x_i, \beta)}{\nu} \right) \right]^2
\] (4)

Given the utility function \( U(Z, q) = a \log Z + (1 - a) \log(q + 1) \), we are able to find the maximum likelihood estimator \( \hat{a} \) by taking the first partial derivative of the likelihood function to variable \( a \) and setting the equation to 0:

\[
\hat{a} = \frac{\sum_{i=1}^{n} \left[ \log \left( \frac{q_i - g(x_i, \beta)}{\nu} \right) \right]}{\sum_{i=1}^{n} \left[ \log \left( \frac{1 + y}{p} \right) \right]}
\] (5)

In equation (5), \( \hat{a} \) represents the maximum likelihood estimator of \( a \).

From the Utility function \( U(Z, q) = a \log Z + (1 - a) \log(q + 1) \), we are able to get Equation (6) and (7) by using the definitions of compensating variation (CV) \( \text{Max}U(Y - pq, q) = U(Y = \text{CV}, 0) \) and equivalent variation (EV) \( \text{Max}U(Y - pq - EV, q) = U(Y, 0) \):

\[
CV = a \times (1 - a) \frac{1}{a} \times \left( Y + p \right) \frac{1}{a} \times p ^{\frac{1}{1 - a} - 1} - Y
\] (6)

\[
EV = Y + p \times Y ^{\frac{1}{1 - a}} \times a ^{-a} \times (1 - a) ^{\frac{1}{1 - a}}
\] (7)

We can find the utility function and calculate the consumer surplus value using \( q_i = g(X_i, \beta) \).

**RESEARCH METHODOLOGY**

The research questionnaire used closed-form items and was divided into three parts:

1. Survey of traveling consumption behavior, whose items included the number of people traveling, the relationship of those traveling together, sources of information, type of transportation, types and cost of lodging, recreational motivation, and so on.

2. Survey of recreational benefits, whose most important part is the correlation between the traveling times and the costs. The research calculated the traveling cost that interviewees were willing to pay by listing questions like
how many times they have visited the Ku-Kwang Hot Spring Park, from where they departed, the average time they spent traveling each way, how long they usually stay, and how much money they spend.

3. Visitors’ information, which includes social economics variables and demographics, e.g., gender, age, educational level and income.

The research used convenience sampling, and the timing for the formal investigation was 12 October to 25 October, 2006. A total of 800 questionnaires were delivered, and there were 388 final valid samples, for a retrieval rate of about 48.5%.

EMPIRICAL ANALYSIS

General Statistical Description

The result of the research showed slightly more females (56.8%) than males; a plurality aged between 21 and 30 years old (38.2%); 47.5% single; 43.46% with an undergraduate degree; 35.2% listing “student” as their profession; a personal monthly income less than US$625 (38.2%); and residences mostly in Taichung City and County, so the customer group of the Ku-Kwang Hot Spring area is mainly visitors from the central part of Taiwan.

Most of the visitors visited 2 to 5 times last year (58.7%). They came mainly with their relatives (42.3%) or with friends or colleagues (26.4%). Therefore, in formulating a marketing strategy, hot spring enterprises could stress “the journey of family love.” Most of the people traveled by private automobiles (52.6%) and spent 2 hours traveling (38.9%). Most of the interviewed visitors came to the area are purposeful visitors (81.2%). The average stay for most of the visitors was two days and one night (59.4%), and the most frequently chosen room type was fair-price rooms (49.2%), for which the price was between US$50 and US$65 (34.8%). In terms of information channel, a plurality of the visitors obtained their travel information from relatives, friends and colleagues (31.5%), while the others obtained information from magazines and the internet, showing the diversity of sources of travel information. Visitors came to the hot spring area mainly to “enjoy the hot spring treatment and experience nature” (86.6%), but some came to “experience the nature around the hotel” and to “enhance the relationship with family and friends.”

Lifestyle and Traveling Consumption Behavior Analysis

Sixteen items in the questionnaire related to variables of living style. We applied the Principle Component Analysis to collect factors related to living structure, and there were four out of sixteen factors with eigenvalues greater than 1: 1) follow nature style, 2) stable style, 3) socialized style and 4) rational and practical style. The total variance explained was 72.56%, and the Cronbach’s coefficient α of the quantities table of the living style was between 0.6~0.75, which is in the accepted range. After applying the K-means algorithm, we divided visitors to the park into three groups:

1. Family group: The educational level of most people in this group is college-graduate, although children under the age of 6 and singles are a high percentage in the group. The group’s travel frequency is higher, and they usually enjoy their vacation during the non-holiday season. The purpose of their vacations is to bond family relationships and increase their mutual memory. They usually choose to stay in lodgings with average price ranges.

2. Group traveling for health: Visitors in this group are the oldest in the sample; they usually have much higher personal income than people in other groups but do not travel very often. Since the purpose of spending their vacations is to enjoy total relaxation and to release pressure, they usually choose to stay in lodgings with higher price ranges.

3. Whatever it takes group: Visitors in this group, in general, are younger than those in other groups; they usually plan their vacation for Saturday and Sunday. The purpose of spending their vacations is to forget feeling tired, release pressure from work, and refresh themselves. This group takes in 48.6% of all travelers in Taiwan.

The Empirical Research of Traveling Cost Model

In the derivation of the empirical research model, we used the average value of all solutions for each variable - e.g., personal income \( Y = \text{US$692.38} \), traveling frequency \( Q = 2.262 \) and traveling cost \( P = \text{US$29.53} \) - to substitute into equation (5) to obtain the maximum likelihood estimator \( a = 0.893 \). By applying the value of \( a = 0.893 \) to equations (6)
and (7), we were able to find the two close values of CV= US$38.95 and EV=US$37.46. In the compensation between the income effect and the substitution effect, we were able to estimate that the numerical value of total recreation benefit that each traveler could get by visiting the Ku-Kwang Hot Spring Park is about US$38.22, which falls between the values of CV and EV. If we compare the value of US$38.22 to the average cost per traveler of US$29.53, there is almost US$9.38 more benefit generated, which means more economic value in the visit to the Ku-Kwang Hot Spring Park.

**Lifestyle and Recreational Benefit Analysis**

In the group analysis of the individual socio-economic background and travel consumption behavior, travelers were grouped in order to compare the recreational benefits of the Ku-Kwang Hot Spring Park to individuals with different lifestyles. According to the result of the analysis, males’ CV value and EV value were 29.59 USD and 29.11 USD, respectively, whereas the CV value and EV value of females were 51.37 USD and 50.61 USD, respectively. Thus, the benefit for females was almost two times higher than that for males.

Regarding age level, most of the respondents were 21-31 years old, with limited income. However, the group of respondents aged between 31 and 41 years old had the highest economic benefit (CV value 183.63 USD and EV value 178.05 USD) and, past that, the value of the benefit decreased as the age increased. For respondents aged over 51, for example, the travel cost was higher than compensated by the CV value and EV value, so this group did not realize economic benefit.

In terms of marital status, those who were married with children had the highest benefit value (CV value 258.42 USD and EV value 249.88 USD), while the lowest benefit value fell among those who were single (CV value 20.51 USD and EV value 20.24 USD).

As for educational level, the group with 10-12 years of education had the highest benefit value (CV value 160.44 USD and EV value 155.82 USD), while those with more than 19 years of education had lower economic benefit (CV value 19.13 USD and EV value 18.87 USD).

For profession, although most of the respondents were students, the benefit value of this group was not high because of the group’s limited income (CV value 19.85 USD and EV value 19.20 USD). However, housewives or retired people had higher benefit value (CV value 61.75 USD and EV value 49.27 USD). Still, as the student group occupied a large portion of the visitors in Ku-Kwang Hot Spring Park, planning of activities might focus more on this student group to benefit from economies of scale.

The results exhibited homogeneity in terms of the place (city/county) of residence, and the shorter the distance from a respondent’s residence to Ku-Kwang Hot Spring Park, the higher the economic benefit. Therefore, the highest benefit value fell in the group from Taichung City and County (CV value 56.11 USD and EV value 53.04 USD); while the group from Ilan, Hualien, and Taitung had the lowest benefit value (CV value 12.88 USD and EV value 12.33 USD). By comparing travel cost with CV value and EV value, the impact of distance on the benefit value became even more significant; in fact, in terms of the place of residence, only the respondents who lived in Taichung City and County had a benefit value higher than their travel cost. Thus, there is significant influence of the transportation function on the recreational benefits of Ku-Kwang Hot Spring Park.

Regarding the attributes of companions, the group of family visitors had the highest benefit value (CV value 187.96 USD and EV value 182.70 USD), and group visitors had the lowest benefit value (CV value 20.06 USD and EV value 19.60 NTD). That means Ku-Kwang Hot Spring Park is more suitable for family visitors and does not provide economic benefit for the group visitors, probably because of the low short-term transportation cost and the lack of related tourism spots in the surrounding areas. Therefore, the travel cost of group visitors was higher than was its economic benefit.

Although most of the visitors spent two days and one night on their trip, the one-day trip was still the best choice in terms of the travel cost (CV value 86.13 USD and EV value 83.94 USD). We estimate that Ku-Kwang Hot Spring Park does not have attractive factors for long-time travel and that a one-day trip can serve as the direction for the redevelopment of the Park in the future.
In terms of transportation tools, the group traveling by car had the highest benefit value (CV value 62.31 USD and EV value 58.54 USD). The travel cost of those who chose buses and motorcycles as their modes of transportation tools was lower than their CV value and EV value, which indicates that choosing bus and motorcycles does have economic benefit.

In terms of traveling time, the highest-benefit value fell in the group who traveled 0.5 hour (CV value 280.36 USD and EV value 266.72 USD), while those who traveled 4 hours had the lowest value (CV value 16.94 USD and EV value 16.74 USD). According to the concept of travel cost, traveling time has significant influence on the benefit value, but as derived from the result of our positive analysis, CV value and EV value did not vary significantly as a result of changes in traveling time. We assume that other costs increase as the traveling time increases, which then results in significant change in the benefit value.

**DISCUSSION AND CONCLUSIONS**

The three groups derived from the lifestyle database exhibited significant differences in terms of lifestyles, population attributes, and consumption behaviors, which finding validates our suggestion that the tourism market has evolved from a mass market to a niche market. There is no single travel product that can satisfy all customers, so we recommend that the hot spring enterprises focus on the characteristics and demands of specific groups to develop peculiar characteristics of their own to meet the needs of these groups. Some suggestions follow.

1. Create a paradise for parents and children to attract family groups. We suggest the enterprises targeting family groups take into consideration the various needs of different age levels and provide packages for parents and children, including discount programs for families.
2. Use pressure-release and relaxation as a theme to attract the health-cultivation group. We suggest the enterprises targeting this group create a peaceful and tranquil environment for vacationers. All the services should be geared to helping release customers’ physical and mental pressures. High-quality hotels and activities could also segment their market so the facilities and services provided are worth paying more than what other customers pay.
3. Use economy pricing and diversified entertainment facilities to attract the impulsive and pleasure-seeking group. This group was the biggest group in our sample, so it is the biggest market. We suggest that enterprises targeting this group set prices for consumption items at a low or moderate level. In addition, they can attract customers from this group with unique features by emphasizing the characteristics and particularity of hot spring hotels.

In addition, since more than 50% of the visitors come from the central region of Taiwan, the application of marketing media could focus on this region as the main target area. Because the travel time for visitors from the central region to the Park is less than 2 hours, we suggest that hot spring enterprises provide one-day packages to attract tourists from this region. As the visitors’ revisitation rate for this hot spring park has reached almost 50%, we suggest that the hot spring enterprises enhance visitors’ loyalty in order to maintain a stable customer base and encourage word-of-mouth advertising. Providing some substantial reward such as discount tickets and VIP cards for frequent visitors can strengthen the connections with old customers and increase the likelihood of their influencing new ones.

The source of information for most respondents was relatives, friends and colleagues, so word-of-mouth is still the best advertisement. Of course, trusted media is also useful, since almost 20% of the visitors obtained information about the hot spring park from internet, so this marketing channel should be utilized as well, including electronic newspapers, online discount tickets, related discount packages and online information about the park.

This study applied the Travel Cost Method to determine the value of the recreational benefit of Ku-Kwang Hot Spring Park. The derived CV value and EV value were 38.95 USD and 37.46 USD, respectively. Compared with the average travel cost of our sample tourists (29.53 USD), the benefit value of the Park was much higher. The result shows that understanding the recreational cognition of tourists could add more economic value to Ku-Kwang Hot Spring Park. This method could be applied in other relevant recreational areas to make comparisons among recreational areas.
REFERENCES


