The Dao of the sceptic and the spiritual: attitudinal and cultural influences on preferences for sustainable tourism services in the domestic Chinese tourism market

Jan Barkmann
Department of Agricultural Economics and Rural Development, Georg-August-Universität Göttingen, Platz der Göttinger Sieben 5, D-37073 Göttingen, Germany
Fax: +49-(0)551-394813
E-mail: j barkma@gwdg.de

Jiong Yan*
Department of Environmental Science and Technology, Sichuan University, Nan Yi Duan No. 24, Yihuan Road, Chengdu, Sichuan Province 610065, P.R. China
E-mail: yanjiong99@gmail.com
*Corresponding author

Anne-Kathrin Zschiegner
Institute of Geography, Georg-August-Universität Göttingen, Goldschmidtstr. 5, D-37077 Göttingen, Germany and University of Exeter, School of Business and Economics, Streatham Court, Rennes Drive, Exeter, Devon, UK EX4 4PU
Fax: +44-(0)1392-263242
E-mail: anne-kathrinconny@gmx.de

Rainer Marggraf
Department of Agricultural Economics and Rural Development, Georg-August-Universität Göttingen, Platz der Göttinger Sieben 5, D-37073 Göttingen, Germany
Fax: +49-(0)551-394813
E-mail: r marggr@gwdg.de
Abstract: The study assesses Chinese tourist preferences for southwest China destination attributes—including the availability of sustainable tourism services (STS). Using the choice experiment method, the influence of attitudinal variables and of cultural values on preferences is also estimated. Data are collected from 213 middle class respondents in Beijing and Chengdu. STS is the only destination attribute which has no clear influence on destination choice. Factor analysis singled out two ‘positive’ attitudinal dimensions (in favour of sustainability, concern for losing future opportunities) and one ‘negative’ dimension (sceptical attitude on STS). Only the sceptical attitude on STS significantly influenced destination choice, and substantially reduced willingness-to-pay (WTP) for STS. Based on images of nature analysis of cultural values by factor analysis, robustness by divine designer and a non-spirituality dimension displayed substantial impacts on destination preferences. The less spiritual the images of nature of a Chinese middle class tourist, the less s/he prefers—and is willing to pay for—trips featuring more natural attractions and more STS.

Keywords: tourist attitudes; sustainable tourism; destination choice; images of nature; preferences; domestic Chinese tourists; China.


Biographical notes: Barkmann is deputy head of the section of Environmental and Resource Economics at the Department of Agricultural Economics and Rural Development at Georg-August-Universität Göttingen. He was trained as a Plant Ecologist at the University of Maine, USA (MS), and obtained his PhD on an interdisciplinary project on sustainable landscape management from Christian-Albrechts-Universität zu Kiel, Germany, in 2001.

Yan works at the Department of Agricultural Economics and Rural Development of Georg-August-Universität Göttingen. Her PhD study focuses on an assessment of preferences of Chinese domestic tourists for nature- and landscape-based tourism with the choice experiment method. She obtained her PhD from Georg-August-Universität Göttingen in 2008.

Zschiegner is a PhD student in Tourism Management currently at the Business and Economics School, University of Exeter. Some of the results presented here are part of her Diploma thesis accomplished in 2006 at Georg-August-Universität Göttingen’s Institute of Geography.

Marggraf is former Dean of the Faculty of Agricultural Sciences of Georg-August-Universität Göttingen and leads the Environmental and Resource Economics section. His key expertise is in benefit cost analysis, economic valuation of environmental goods and economic assessment of agri-environmental policy. He is a member of the Directorate of the Interdisciplinary Research Centre Agriculture and the Environment at Göttingen University as well as of several national committees in biological diversity and the environment.
1 Introduction

Chinese domestic tourism is increasingly recognised as a major factor with respect to the sustainable development of the entire industry (Bramwell and Lane, 2004). Growing 18% over 2005, income from domestic tourism in 2006 was 623 billion RMB (~62.3 billion €) (CNTA, 2006). The Chinese tourism industry causes increased resource consumption, and threatens ecologically sensitive areas (Deng et al., 2003; Han and Zhuge, 2001). These issues are particularly crucial in southwest China, which harbours one of 25 global biodiversity hotspots (Myers et al., 2000) and which is an officially designated focus area of national tourism development (Ge, 2002).

Chinese tourism research and planning is mostly conducted from a supply side perspective [Bao et al., (2002), p.97]. In contrast, demand-side factors such as tourist preferences and attitudes have only recently started to become a systematic research objective. Wu and Cai (2005) investigated spatial relations between source regions and destination choice, and Cai et al. (2001) estimated future demand by urban Chinese tourists. Mao et al. (2005) asked tourists to characterise destinations in Jiangxi Province in order to explore attributes commonly used to describe southeast China destinations.

While substantial work was conducted in general marketing research on the fundamental cultural value orientations of Chinese consumers, these studies are limited from a tourism economics perspective. Either the studies do not provide information on the influence of the cultural value orientations on economic preferences (Li and Cai, 2004; Li, 2005), or they do not focus on tourism applications (Chan, 2001; Chan and Lau, 2000). Internationally, cultural value orientations are increasingly investigated from an images of nature point of view (Born et. al., 2001; Korfiatis et al., 2003; Stamou and Paraskevopoulos, 2004), a research approach not yet empirically used in China.

In sum, no published material from mainland China is available on domestic tourist

- economic preferences [willingness to pay (WTP)] for typical attributes of nature- or landscape-based destinations
- WTP for sustainable tourism services (STS)
- attitudes on STS and their influence on WTP
- cultural value (‘image of nature’) influences on WTP.

The study aims at expanding the demand-side research of Chinese domestic tourism focusing on these four aspects. Technically, we utilise a choice experiment (Hensher et al., 2005) to assess WTP for destination attributes – including the availability of STS. Our study employs established theory in social-psychology and environmental psychology to guide the development of attitudinal STS and cultural value measures. Because of the paucity of empirical studies on mainland Chinese tourist attitudes and value orientations, we follow an exploratory methodology.

Following a literature review (Section 2) and methods (Section 3), economic preferences of destination attributes are assessed (Section 4). The results section includes a basic analysis of destination preferences (4.2) as well as factor analysis results on the definition of attitude and images of nature dimensions (4.3). Influences of
these dimensions on destination preferences are analysed in Sections 4.5 and 4.6. In the discussion (Section 5), we give a brief outlook on the potential attitude and cultural value changes associated with a better off, better educated and aging Chinese society.

2 Literature review

2.1 Attitudes toward sustainable tourism

Following Shaw and Williams (2002), we define sustainable tourism as a form of tourism in which the economic interests of the tourism industry are embedded in a frame of a broader sustainable development of economic, cultural and social issues as well as of a careful utilisation of the natural resource base (see also WTO, 2004).

Attitude is the tendency to respond to an object with some degree of favourableness or unfavourableness (Ajzen, 2008). A number of tourism studies report attitude as an influential explanatory variable of tourist behaviour or behavioural intention (Machairas and Hovardas, 2005; Shin and Jaakson, 1997; Um and Crompton, 1990). WTP can be interpreted as a behavioural intention (Ajzen and Driver, 1992a). The new ecological paradigm (NEP) (Dunlap et. al., 2000) provides a widely used set of general environmental attitude items for attitude-behaviour studies including applications in Chinese tourism research (Li and Cai, 2004; Li, 2005). However, reliance on established NEP-type psychometric scales has the disadvantage that general attitudinal variables are usually worse predictors of behavioural intentions than behaviour-specific variables (correspondence principle: Ajzen and Fishbein, 1977). This was also shown for tourism behaviour (Machairas and Hovardas, 2005; Shin and Jaakson, 1997).

For the design of specific attitudinal items on STS aimed at predicting behavioural intentions, several socio-psychological action theories are available. Three widely used theories are the theory of planned behaviour (TOPB) (Ajzen, 1985), protection motivation theory (PMT) (Rogers and Prentice-Dunn, 1997), and norm activation theory (Schwartz, 1977). In TOPB, attitudes, subjective norms and perceived behavioural control towards behaviour determine behavioural intentions (Ajzen, 1985). TOPB is a well-tested general action theory with applications in tourism research (e.g., Ajzen and Driver, 1992b; Hsu et al., 2006). Central to PMT are variables that operationalise perceived threat in face of a potential risk (threat appraisal) and coping appraisals with regard to potential remedial (‘adaptive’) actions (Rogers and Prentice-Dunn, 1997). Coping appraisal consists of beliefs in the general efficacy of a proposed adaptive action (response efficacy), and a belief in the individual’s ability to successfully perform the adaptive action (self efficacy). For the investigation of pro-environmental behaviour, PMT is a prime methodological choice (Homburg, 2004). Successful tourism-related applications include Gramann et al. (1995) and Graefe (1998). Schwartz’s norm activation theory (Schwartz, 1977) postulates that environmental action is triggered by the activation of personal norms, e.g., if individuals believe that a threat to other humans or nature is present, and if their actions could avert negative consequences of the threat (ascription of responsibility to self; see also Montada and Kals, 1995). Substantial supportive evidence exists also for norm activation theory (Stern et al., 1999).
These approaches are partly overlapping although used terms and definitions vary. In an exploratory study, one may expect that a set of specific attitude items on potential STS dedicated to a selection of constructs of the above outlined theories theoretically resulting in higher pro-environmental intentions can be used to predict STS preferences as measured by the choice experiment (see Section 3.6, hypothesis 2).

2.2 Images of nature

Studies on ‘images of nature’ investigate culture-dependent ways in which the complex relations between humans and nature are conceptualised (Born et. al., 2001; Krömker, 2004, 2005). Images of nature have increasingly become a research topic in the social sciences (Barkmann et al., 2005; Born et. al., 2001; Stamou and Paraskevopoulos, 2004). Compared to attitudes, images of nature belong to a culturally more deeply entrenched stratum of fundamental beliefs and values (cf. Homer and Kahle, 1988). Images of nature are difficult to change, e.g., by visiting a nature reserve (Stamou and Paraskevopoulos, 2004). In contrast, tourist attitudes have been reported to be positively influenced by ecotourism experiences (Lee and Moscardo, 2005).

Krommer (2004, 2005) presents empirical evidence that image of nature dimensions can be operationalised in an intercultural context. Her items are, for example, inspired by cultural theory (Thompson et. al., 1990) and NEP (Dunlap et al., 2000). She finds that respondent groups with specific cultural characteristics hold qualitatively different images of nature. The majority of Indian respondents had decisively ‘spiritual’ images of nature, for example. These differences were found to contribute to the explanation of pro-environmental intentions.

The perception of nature and of the human-nature relation in traditional Chinese culture can be described as more ‘ecocentric’ than traditional western world views (Jenkins, 2002; Yau, 1988). Wong and Lau (2001) identified four cultural value factors in Hongkong Chinese tourists: social integration, Confucian work dynamism, personal well-being and moral discipline. Other studies (Chan and Lau, 2000; Chan, 2001) proved the existence of strong harmony/ecocentrism orientations in mainland Chinese consumers. Li (2005) and Li and Chai (2004) found that Chinese ecotourists demonstrate strongly ecocentric NEP scores. However, this was not observed in Chinese respondents in Canada (Deng et al., 2006). To our knowledge, empirical studies using an image of nature approach that extends beyond the application of NEP scales have not been conducted in mainland China. Neither do any of the studies cited in this paragraph relate a measure of cultural value to economic destination preferences.

In addition to the Buddhist and Daoist influences in Chinese traditional culture, the finding that ‘spiritual’ images of nature are held by a majority of Indian respondents (Krommer, 2004) motivates the hypothesis that Chinese middle class respondents with a spiritual image of nature display higher preferences for natural attractions, but are more strongly appalled by ‘tarnished’ nature experiences (see attributes in Table 1, and hypothesis 3 in Section 3.6).
2.3 The choice experiment (CE) method

The CE method is rooted in the ‘characteristics’ theory of goods (Lancaster, 1966), and in random utility theory (RUT, McFadden, 1973). Consumers do not derive satisfaction from goods themselves but from the characteristics (‘attributes’) of the goods. These attributes are usually quantified by a specific set of attribute ‘levels’. RUT postulates that consumer preferences for such (destination) attributes consist of a systematic component that relates to ‘observable’ characteristics of the destination (i.e., to the attribute levels), and an unobservable random error component (McFadden, 1973).

For CEs, different goods are created from attribute levels according to experimental design rules. If one attribute is a monetary attribute, marginal WTP for a change in attribute levels can be calculated. Socio-demographic as well as cultural/psychological variables can be incorporated into CE models in order to investigate their influence on the importance of the single attributes. For recent reviews and manuals on a state-of-the-art application of the CE methods refer, e.g., to Hensher et al. (2005) or Louviere et al. (2000).

CEs are frequently employed for tourism and leisure studies, and have proven to be a versatile stated preference method (Apostolakis and Jaffry, 2005; Haener et al., 2001; Heame and Salinas, 2002; Huybers, 2003). Answers to hypothetical destination choice questions have been shown to reflect actual destination choice well (Adamowicz et al., 1994; Haener et al., 2001).

3 Methodology

3.1 A destination choice experiment

The destination area chosen is mountainous southwest China, a global biodiversity hotspot and officially designated tourism development area (Ge, 2002; Myers et al., 2000). First, we identified the attributes that characterise landscape- and nature-based destinations in southwest China. To optimise this step, the second author conducted 13 qualitative in-depth interviews in spring 2005 with Chinese middle class consumers interested in travelling. Five attributes that potentially influence tourist destination choices were abstracted from the interviews (Table 1). STS is the only attribute designed exclusively due to research interests. Attribute levels reflect typical destination characteristics in southwest China. Because of the limited availability of STS in China to date, the extensive level of the STS attribute reflects potential developments rather than current practices. Levels of the cost attribute were identified based on public information on trip costs for modest backpackers, commercially organised package tours, and ‘luxury’ trips involving rental of vehicles with drivers. Selection and operationalisation of the attributes imply the hypothesis that the attributes are predictors of destination choice in CE analysis (hypothesis 1, Section 3.6).

From the set of attributes, a total of 3,840 (4^4*3*5) destination ‘scenarios’ can be generated. An orthogonalisation procedure was used to generate a main effects design consisting of 24 pair-wise comparisons of destination scenarios. The scenarios were randomly blocked into three groups, each with eight choice sets (for an example, see Figure 1). The CE instrument was improved by a pilot study in Beijing (n = 50) in autumn 2005.
<table>
<thead>
<tr>
<th>Destination attribute</th>
<th>Attribute levels</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience at places just outside of attraction site</td>
<td>No car roads, only trails; no hotels or hostels, tourists need to bring their own food</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Difficult motor access; several simple hostels or hotels</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Old roads; some common hotels and restaurants</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>National roads and highways; many hotels from two stars to four or five stars, and many restaurants</td>
<td>4</td>
</tr>
<tr>
<td>Tarnished nature experiences (‘possibility of experiencing nature’)§</td>
<td>Sense of solitude and tranquillity; no tourism infrastructure; no other visitors</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>At times, some basic tourism infrastructure (restaurants, stores, toilets) visible; meet other people every hour</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>big scale tourism infrastructure (cable car, Karaoke), always be aware of ‘this is a tourism place’; meet other people every minute</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Many kinds of tourism infrastructures everywhere; many ‘artificial’ attractions; very crowded</td>
<td>4</td>
</tr>
<tr>
<td>Cultural attractions</td>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Some traditional old buildings mixed with many modern buildings; no original living culture</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Several traditional local buildings mixed with many modern houses; temple without usage; modernised customs and culture</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Well preserved traditional buildings; temples with monks playing roles in local people’s life; well-preserved original culture</td>
<td>4</td>
</tr>
<tr>
<td>Natural attractions</td>
<td>Ordinary landscapes; no precious or attractive species</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Magnificent awe-inspiring natural landscapes; no precious or attractive species</td>
<td>2§</td>
</tr>
<tr>
<td></td>
<td>Ordinary landscapes, many precious species and very abundant species-rich biodiversity (panda, golden monkey)</td>
<td>2§</td>
</tr>
<tr>
<td></td>
<td>Magnificent awe-inspiring landscapes, many precious species and very abundant species-rich biodiversity (panda, golden monkey)</td>
<td>3</td>
</tr>
<tr>
<td>Sustainable tourism services</td>
<td>Freely visit every place; no visitor restriction; no resource saving or recycling; no community involvement</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Small conservation program only for core attraction area; litter/trash cans; community based business-restaurants, hostels and small hotels, local specialty stores and horse riding service</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Having buffer zone; scientific conservation program for core area and buffer zone; green buses, bio energy use and waste water treatment; local community participates in decision-making on local development, and local business involvement (see above)</td>
<td>3</td>
</tr>
<tr>
<td>Local costs&amp;</td>
<td>780 RMB, 1440 RMB, 2400 RMB, 4200 RMB, 7200 RMB ( = coding)</td>
<td></td>
</tr>
</tbody>
</table>

Note: # Base level (opt out option) was coded as 0.
§ The attribute to which tarnished nature experience refers shows up in the actual choice cards (Figure 1) under the more neutral description ‘possibility of experiencing nature’.
$ The natural attractions level 2 and 3 are coded ‘2’ because there is no ‘natural’ order of the two levels.
& Total costs for a one week trip excluding transportation to destination area.
3.2 Attitudes towards STS

Our literature review did not identify any published set of questionnaire items that specifically assess STS. STS potentially implemented in southwest China include:

- provision of transportation options by ‘green’ emission-reduced buses, as well as provision of renewable energy resources
- implementation of resource saving technologies including basic and advanced waste management
- establishment of protected areas and biodiversity conservation programs to assure the natural attractiveness and ecological integrity of the destination
- local community involvement in tourism business and tourism planning.

Most STS attitude items are derived from constructs included in PMT. Items focus on threat appraisal (respondents perceive tourism development as generating environmental or social threats), response efficacy (the proposed STS are seen as effective means to reduce these potential threats), and self efficacy (an individual is able to successfully use them). Additionally, we included items on subjective norms and on attribution of responsibility (individual versus social responsibility for reducing tourism threats).

Item construction can be described as an approximation of a two-facet design with STS as one facet, and a social-psychology variable facet. Because of the strictly limited time available for each interview, each of the facet combinations (four STS aspects*four constructs) could only be operationalised by one or maximally two items. For a total of 19 items designed (Table 2), we used a closed answer format with a five-point Likert scale (1 = totally disagree to 5 = totally agree).
Table 2  Examples of attitudes toward sustainable tourism services items

- In my opinion, extra fees for tourism services, such as green buses, are just an excuse to charge more and rip-off tourists. *(Sceptical attitude)*§
- I am really afraid of losing the future opportunity for travel enjoyment in southwest China if the tourism development is not done in a sustainable manner. *(Concern of losing future opportunities)*
- Making sure that the members of a local community can run tourism-related businesses is essential for harmonious tourism development in southwest China. *(In favour of sustainability)*
- Green buses really contribute to keeping the air of destinations clean, and keeping the place quiet. *(In favour of sustainability)*

Note: § Phrase in parenthesis identifies the STS dimension to which the item was assigned by factor analysis (see results section).

3.3  Images of nature

This study employs 27 images of nature items used by Krömker (2004). Starting from the original English and German language versions, the second author translated the items, and pre-tested them in qualitative interviews. Additionally, the survey instrument included 12 self-developed harmony items. Examples for the images of nature items are given in Table 3.

Table 3  Examples of images of nature items

- Humans should protect nature because it is useful and provides a lot of advantages for us. *(Nature needs and deserves to be protected)*§
- Nature has its own right of existence; therefore it is not allowed to destroy nature anywhere for human needs. *(Respect)*
- Nature always recovers (by itself), no matter what humans do. *(Robustness by divine designer)*
- Nature is important, but neither has a soul nor is sacred. *(Non-spirituality)*

Note: § Phrase in parenthesis identifies the images of nature dimension to which the item was assigned by factor analysis (see results section).

3.4  Administration of the survey

The CE (*n* = 213) was conducted in two national tourist source areas in summer and fall 2006 (i.e., before the earthquake in southwest China in 2008). Beijing (14.8 million citizens) represents East Coast agglomerations, and the provincial capital city of Chengdu (Sichuan Province; 10 million citizens) a regional tourism source area. Sixteen city sub-districts in Beijing and Chengdu were randomly selected from a list of suitable sub-districts that were identified by the following two criteria:

- price range of offered apartments typical for middle class citizens
- availability of public spaces or accessible semi-public spaces inside gated residential compounds to contact respondents.
The public and semi-public spaces included shopping malls, supermarkets, outdoor markets, parks, restaurants and tea houses, gardens and other open compound spaces.

Local university graduate students were carefully trained as interviewers. A quota sampling procedure was used to recruit respondents. Three sampling criteria (quota) were employed: equally distributed genders; evenly distributed age in the range of 20 to 60 years; even recruitment with respect to the selected 16 city sub-districts. Corresponding to the official Chinese government definition of middle class citizens (CNBS, 2005), we required that the monthly income of a respondent was above 1,500 RMB in Beijing and above 1,250 RMB in Chengdu. Interviews were terminated if a potential respondent declared that s/he did not like travelling.

Each respondent was asked to choose eight times from the prepared choice sets. Each choice set consisted of two different scenarios representing tourism trips to southwest China (cards A and B), and an opt out/buy nothing option (see Figure 1). Next, attitudinal (\(n = 112\)) or images of nature questions (\(n = 101\)) were asked. With a total of \(19 + 39 = 58\) attitudinal and images of nature items in one interview, our pre-studies had shown that the total length of the valuation interview of approximately 80 minutes put an excessive burden upon respondents. Thus, we decided to either include only the attitudinal or the images of nature items in a single interview (split-sample approach). In a final section of the interview, additional socio-demographic questions were asked.

3.5 Statistical and econometric analysis

3.5.1 Factor analysis and correlation analysis

The attitudinal and images of nature items were subjected to exploratory factor analysis in order to reveal dimensions that potentially influence destination choice (e.g., Abdul-Muhmin, 2007). To facilitate comparison with the source of the images of nature data (Krömker, 2005), we used a varimax-rotated factor analysis with binary squared Euclidean distance and Ward-linkage. Exploratory factor analysis generated five STS attitude dimensions (total explained variance: 58.1%). The first three dimensions alone explained 44.6% of the variance. From the images of nature items, four dimensions were singled out explaining 56.4% of variance.

For interaction analysis, all items \(i\) of each dimension \(d\) with a factor loading \(l\) above \(0.4\) were used to calculate the dimension score \(V\) of the respective dimension for each respondent \(n\):

\[
V(d, n) = \sum_i \text{Factor Loading } l_i \times \text{Likert Score } Q_i
\]

Pearson correlation coefficients were calculated for the relation between age, income and education (in years) on the one hand and attitude and images of nature dimensions on the other. Spearman correlation coefficients were used for analysis with sex and residency. Factor analysis, reliability tests (Cronbach’s alpha) as well as correlation analysis were conducted with SPSS 12.1.

3.5.2 Nested logit model estimation

The utility models underlying our CE analysis are assumed to be linear and additive in parameters. The linearity assumption is not self-evident. Even a highly significant
positive linear attribute coefficient may result, e.g., from an inverted U-shape utility curve if the extreme attribute levels display much different utility. While the linear model predicts linearly rising preferences for each attribute level step, preferences may actually drop between some levels. For practical applications, such as sustainable tourism development analysis, this is a highly undesirable feature. The average marginal preference changes across all attribute levels would still be predicted correctly, though. For the exploratory analysis of the effects of destination attributes as well as attitudinal and cultural value variables on destination choice in this study, we regard a restriction to average marginal preference effects as sufficient.

For the estimation of the utility coefficients, nested logit (NL) estimation procedures were chosen instead of the more simple conditional logit (CL) procedures because preliminary analyses has indicated the risk of a violation of the IIA (independence of irrelevant attributes) assumption necessary for valid CL estimates. Eligible NL tree structures were identified, and the corresponding models estimated with NLOGIT 3.0 using the utility maximisation NL model specification. The inclusive value was set to 1.0 for the degenerated branch, and the models initiated with starting values obtained from a non-nested model [Hensher et al., (2005), p.536]. All scale parameters were normalised at the lowest level (RU1).

The base model includes an alternative specific constant (ASC) coded 1 for the generic choices A and B, and 0 for the ‘opt out/buy nothing’ option. The ASC captures a fundamental propensity to make a trip to southwest China beyond the information given by the choice cards A and B. Where appropriate, pseudo-$R^2$ (‘constants only’ value) and inclusive values (IV) are reported as diagnostic statistics. Pseudo-$R^2$ values in reference to a constant only model are much more conservative than the $R^2$ values of ordinary least squares (OLS) models. For example, values between 0.07–0.1 correspond to $R^2$ values of 0.22 to 0.28 in OLS model equivalents [Hensher et al., (2005), p.338]. All NL models from which results are presented are overall most highly significant ($p$-value of Chi$^2$-Test < 0.001).

First, we calculated a base model only including destination attributes and the ASC as predictors (Table 5). Next, the influence of socio-economic variables was assessed. Influences of STS attitudes (Table 6), and of images of nature (Table 7) were tested by including interaction terms of the respective variables with destination choice attributes and/or the ASC. Interaction terms were generated from standardised variables, and included one-by-one as single terms into the NL base model (Tables 6–7).

### 3.5.3 Parsimonious model and WTP estimation

By including promising interaction terms of CE attributes with socio-demographic variables and with STS dimensions, we constructed parsimonious NL models. After including all interaction terms simultaneously, non-significant interaction terms were successively discarded to recover the most influential dimensions/variables. The third best fitting model is displayed in Table 8.

The estimation of statistically significant attribute coefficients allows for the calculation of economic preferences in terms of mean WTP of the sample of respondents. Maximum WTP for a one unit change of trip attribute $a$ (‘marginal’ WTP) equals the ratio of the respective attribute coefficient $b_a$ and the negative value of the cost attribute coefficient $b_c$ (Table 8).
For Figure 2, marginal WTP values were calculated from the interaction term between the STS attribute and the ‘sceptical attitude’ dimension, and displayed for respondents with different sceptical attitude dimension scores to illustrate preference heterogeneity.

3.6 Hypotheses

Hypothesis 1: All six destination/trip attributes influence (hypothetical) destination choice with regard to southwest China landscape- and nature-based destinations.

For convenience, natural attractions, cultural attractions and the STS attribute, we expected positive preferences; for tarnished nature experience and the cost attribute we expected negative preferences. The hypothesis is tested for each of the attributes singly; it is accepted if the corresponding null-hypothesis of no influence is rejected at $\alpha = 0.05$ ($p$-value of the coefficient of the non-interacted attributes in NL base model; see Table 5).

Hypothesis 2: Respondents with above average ‘positive’ attitudes toward STS have higher preferences for higher STS levels.

This hypothesis is tested by introducing interaction terms of all STS attitude dimensions that express a supporting attitude towards STS with the STS attribute into CE models. The hypothesis is regarded as verified if a falsification of the associated null-hypothesis of no influence is rejected at $\alpha = 0.05$ ($p$-value of the coefficient of the interaction terms; see Table 6).

Hypothesis 3: Respondents with above average ‘spiritual’ images of nature have higher preferences for more natural attractions, and obtain higher disutility from ‘tarnished’ nature experiences.

This hypothesis is tested by introducing interaction terms of all ‘spiritual’ attitude dimensions with the two mentioned attributes into CE models. The hypothesis is regarded as verified if a falsification of the associated null-hypothesis of no influence is rejected at $\alpha = 0.05$ ($p$-value of the coefficient of the interaction terms; see Table 7).

4 Results

4.1 Socio-demographic characteristics

Average respondent age was 35.6 years (Table 4). A gender ratio of 56.3% male to 43.7% female was achieved. With differences between Beijing and Chengdu, average monthly income per respondent was 2,887 RMB (289 €) corresponding to the upper middle class income category (CNBS, 2005). 69% of respondents held a formal educational degree equivalent to a Bachelor degree or above. This is much higher than the Chinese average of 5.8% (CNBS, 2005).
The Dao of the sceptic and the spiritual

Table 4  Social demographics of the sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coding</th>
<th>Mean value</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td>35.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>Female</td>
<td>0</td>
<td>93</td>
<td>43.7</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1</td>
<td>120</td>
<td>56.3</td>
</tr>
<tr>
<td>Income</td>
<td>Mean of Beijing and Chengdu</td>
<td>2887 RMB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residency and income</td>
<td>Beijing</td>
<td>1</td>
<td>3441 RMB</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>Chengdu</td>
<td>0</td>
<td>2378 RMB</td>
<td>102</td>
</tr>
<tr>
<td>Education</td>
<td>Lower than Bachelor</td>
<td>12</td>
<td>66</td>
<td>31.0</td>
</tr>
<tr>
<td></td>
<td>Bachelor</td>
<td>16</td>
<td>112</td>
<td>52.6</td>
</tr>
<tr>
<td></td>
<td>Master</td>
<td>19</td>
<td>29</td>
<td>13.6</td>
</tr>
<tr>
<td></td>
<td>PhD and above</td>
<td>22</td>
<td>6</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Note: 1 € ≈ 10 RMB; n = 213.

4.2 Base NL model

Five out of six attributes of the NL model are highly significant determinants of destination choice (see Table 5). STS is the only non-significant attribute \((p = 0.6778)\). A positive sign is displayed for the convenience, cultural attractions and natural attractions attributes. Tarnished nature experience and cost have negative signs. Hypothesis 1 is mostly supported by base model results. However, for the STS attribute, the hypothesised (positive) influence on destination choice is rejected.

Table 5  NL base model

<table>
<thead>
<tr>
<th>Attribute/statistic</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>0.1153**</td>
</tr>
<tr>
<td>Tarnished nature experience</td>
<td>–0.2175***</td>
</tr>
<tr>
<td>Sustainable tourism services</td>
<td>0.0197</td>
</tr>
<tr>
<td>Cultural attractions</td>
<td>0.1352***</td>
</tr>
<tr>
<td>Natural attractions</td>
<td>0.2787***</td>
</tr>
<tr>
<td>Cost [1000 RMB]</td>
<td>–0.1537***</td>
</tr>
<tr>
<td>[Non-status quo ASC]</td>
<td>0.4129*</td>
</tr>
</tbody>
</table>

Log Likelihood function

\[-1635.8\]

\[P(\text{Chi}^2); \text{DF} < 0.0001; 8\]

Pseudo-R\(^2\) (constant only)

\[0.076\]

Inclusive value (IV)

\[0.9072\]

Note: *** significant at \(p \leq 0.001\)

** significant at \(p \leq 0.01\)

* significant at \(p \leq 0.05\). DF: degree of freedom

pseudo-R\(^2\) values in reference to a constant only model

IV statistic is highly significantly different from one

\(n = 213\)

When the base model is interacted with socio-demographic variables (data not shown), a significant positive coefficient is found for the interaction term of log (income) and cost.
Sex (male = 1) has a highly significant and positive influence on ASC ($p = 0.0003$).

### 4.3 Factor analysis

#### 4.3.1 Attitudes towards STS

Factor analysis generated five dimensions of the attitude items. The extremely low Cronbach’s alpha values of the fourth (0.311) and fifth (0.318) dimension suggest a focus on the first three dimensions (mean raw score±SD; Cronbach’s alpha):

- ‘in favour of sustainability’ (4.04±0.40; 0.84); ‘positive’ STS attitude
- ‘concern for losing future opportunities’ (4.11±0.51; 0.70); ‘positive’ STS attitude
- ‘sceptical attitude’ on STS’ (3.52±0.49; 0.58); ‘negative’ STS attitude.

While the ‘in favour of sustainability’ dimension explains over one quarter of the factor analysis variance (26.3%), the ‘concern for losing opportunities’ dimension explains 11.1%, and the ‘sceptical attitude’ dimension 7.2%. The excluded two dimensions explain an additional 13.5% of variance.

#### 4.3.2 Images of nature

Four images of nature dimensions were identified (mean raw score±SD; Cronbach’s alpha):

- Nature needs and deserves to be protected (4.10±0.47; 0.80): Nature should be protected because it enriches our lives by wonderful magnificence.
- Respect (3.89±0.6; 0.55): Nature has its own right of existence; it is not allowed to destroy nature anywhere for human needs. Even small interferences can lead to big and irreversible damages.
- Robustness by divine designer (2.19±0.71; 0.76): Nature is not that fragile; humans can use it as they want. It is a creation of God.
- Non-spirituality (3.04±0.96, single-item dimension): Nature is important, but neither has a soul nor is sacred.

The ‘nature needs and deserves to be protected’ dimension explains 24.5% of the variance, the ‘robustness by divine designer’ 16.6%, 8.2% the ‘respect’ dimension and 7.1% the ‘non-spirituality’ dimension. In total, 56.4% of variance is explained. Because no clear spirituality dimension is formed, hypothesis 3 will be tested with the ‘non-spirituality’ dimension instead.

### 4.4 Correlation of attitudinal and images of nature dimensions with socio-demographic variables

Correlation analysis between social demographics and attitudinal dimensions shows that only education significantly correlates with the ‘concern for losing future opportunities’ dimension ($r = 0.333; p < 0.001$). Among the images of nature dimensions, the ‘needs and deserves to be protected’ dimension correlates negatively with education ($r = -0.202; p = 0.043$); and the ‘non-spirituality’ dimension has a marginally significant correlation with education ($r = -0.165; p = 0.098$). The ‘robustness by divine designer’ dimension is positively correlated with age ($r = 0.21; p = 0.035$).
Table 6
NL models of interactions with attitudes toward sustainable tourism services

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Coefficient</th>
<th>Convenience</th>
<th>Furnished restoration experience</th>
<th>Sustainable tourism services</th>
<th>Cultural attractions</th>
<th>Natural attractions</th>
<th>Cost [1000 RMB]</th>
<th>Non-status quo ASC</th>
</tr>
</thead>
<tbody>
<tr>
<td>In favour of sustainability</td>
<td>attribute¹</td>
<td></td>
<td></td>
<td>0.0431</td>
<td></td>
<td></td>
<td>0.5771*</td>
<td></td>
</tr>
<tr>
<td>Concern for losing future opportunities</td>
<td>interaction²</td>
<td></td>
<td></td>
<td>-0.0619*</td>
<td></td>
<td></td>
<td>-0.1756*</td>
<td></td>
</tr>
<tr>
<td>Sceptical attitude</td>
<td>attribute</td>
<td></td>
<td></td>
<td>0.0900*</td>
<td>0.0177***</td>
<td>0.0617*</td>
<td>0.0975*</td>
<td>-0.1621***</td>
</tr>
<tr>
<td></td>
<td>interaction</td>
<td></td>
<td></td>
<td>-0.1077***</td>
<td>-0.1155***</td>
<td>-0.1227***</td>
<td>-0.0731*</td>
<td>-0.0606*</td>
</tr>
</tbody>
</table>

Note: *** significant at $p<0.001$
** significant at $p<0.01$
* significant at $p<0.05$
+ tendency at $p<0.1$
$¹$ coefficient of attitude without interaction
$²$ coefficient of interaction term with attitude
$n=112$
4.5 Influences of attitudes toward STS on preferences

Table 6 shows results from models with single attitude dimension interaction terms. Main results are:

- The ‘in favour of sustainability’ dimension has no significant influences on preferences for destination attributes.
- The ‘concern for losing future opportunities’ dimension displays a tendency for a negative effect on STS preferences \((p = 0.092)\), and also a tendency for a decreased residual impact on the general interest in taking trips to southwest China (ASC, \(p = 0.067)\).

None of these two ‘positive’ attitude dimensions results in higher preference for the STS attribute. Hence, hypothesis 2 is falsified.

- The ‘sceptical attitude’ dimension moderates the influence of all attributes on choice and, thus, on preferences. The signs of the interaction coefficients reveal that respondents with a stronger ‘sceptical attitude’ prefer ‘convenience’ less strongly \((p < 0.001)\), and are more negatively affected by ‘tarnished nature experience’ \((p<0.001)\). More sceptical respondents have lower preferences for STS than average respondents \((p = 0.001)\). Respondents who are more sceptical also have lower preferences for ‘cultural attractions’ \((p = 0.011)\) and ‘natural attractions’ \((p = 0.030)\). Furthermore, ‘sceptical attitudes’ result in increased sensitivity to trip costs \((p = 0.010)\).

4.6 Influences of images of nature

Table 7 shows results from the NL models that include interactions with the images of nature dimensions.

- The ‘nature needs and deserves to be protected’ \((p = 0.022)\) and ‘respect’ \((p = 0.024)\) dimensions form significant interactions only with the cost attribute. Respondents scoring higher in these dimensions receive lower disutility from trip cost.
- The ‘robustness by divine designer’ dimension is a significant moderator on the influence of three attributes: ‘tarnished nature experience’ \((p = 0.001)\), ‘cultural attractions’ \((p = 0.003)\), and ‘cost’ \((p = 0.005)\). The dimension also demonstrates a tendency \((p=0.0825)\) when interacted with the STS attribute. The positive sign of the interaction terms suggests that respondents who think that nature is robust and that it primarily exists for humans regard the offered STS less negatively.
- Respondents holding stronger non-spiritual images of nature tend to receive lower benefits from ‘convenience’ \((p = 0.052)\), view the STS attribute (more) negatively \((p=0.014)\), and have lower preferences for ‘natural attractions’ \((p < 0.001)\).

Hypothesis 3 is rejected regarding the tarnished nature experience attribute because no influences could be documented. Hypothesis 3 is accepted regarding the natural attractions attribute because the more non-spiritual respondents value natural attractions less.
Table 7: NL models of interactions with images of nature dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Coefficient</th>
<th>Convenience</th>
<th>Furnished nature experience</th>
<th>Sustainable tourism services</th>
<th>Cultural attractions</th>
<th>Natural attractions</th>
<th>Cost [1000 RMB]</th>
<th>Non-status quo ASC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs and deserves to be protected</td>
<td>attribute$^3$</td>
<td>interaction$^8$</td>
<td>-0.156***</td>
<td>-0.049**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respect</td>
<td>attribute</td>
<td>interaction</td>
<td>-0.156***</td>
<td>-0.049**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robustness by divine designer</td>
<td>attribute</td>
<td>interaction</td>
<td>-0.272***</td>
<td>-0.039</td>
<td>0.183***</td>
<td>0.0459**</td>
<td></td>
<td>-0.1551***</td>
</tr>
<tr>
<td>Non-spirituality</td>
<td>attribute</td>
<td>interaction</td>
<td>0.130***</td>
<td>0.0680*</td>
<td>0.0956**</td>
<td>0.0562**</td>
<td></td>
<td>0.2794***</td>
</tr>
</tbody>
</table>

Note: *** significant at p<0.001  
** significant at p<0.01  
* significant at p<0.05  
+ tendency at p<0.1  
$ coefficient of attribute without interaction  
$ coefficient of interaction term with attribute  
N=101
4.7 Parsimonious model and WTP calculation

Table 8 shows the third best parsimonious NL model including two significant interaction terms. We display this model in detail because of the prime analyst interest in the performance of the STS attribute. If we replace the interaction term ‘STS attribute*sceptical attitude’ with ‘tarnished nature experience*sceptical attitude’, the best parsimonious model with a slightly better model fit is obtained (interaction term coefficient = –0.1104; LL = –848.59; pseudo-R² = 0.084). The second best fitting parsimonious model is obtained by replacing ‘STS attribute*sceptical attitude’ with ‘convenience*sceptical attitude’ (interaction term coefficient = –0.1033; LL = –848.88; pseudo-R²=0.084).

In Table 8, the ‘sceptical attitude’ displays an influence on preferences for STS. Sex influences the importance of the ASC. In spite of the clearly documented influence of all included predictors on average hypothetical destination choice, the pseudo-R² value of 0.083 (~0.24 in OLS) indicates a substantial but limited capacity of the model with regard to the prediction of individual choices.

Based on the model displayed in Table 8 and an assumed linear utility function, average marginal WTP is calculated. The predicted result from a one level improvement of trip ‘convenience’ is an increased WTP of 751 RMB (~75 €). In contrast, a one level worsening of the tarnished nature experience attribute reduces WTP by 952 RMB (~95 €). Respondents with one SD (SD = 1.157) higher agreement with the sceptical attitude, demonstrate marginal WTP of –769 RMB (~–77 €) for a one level improvement of the STS attribute.

Table 8  Parsimonious model and marginal WTP estimation based on sub-sample with attitudinal data (ASC value for male respondents)

<table>
<thead>
<tr>
<th>Attribute/interaction/statistic</th>
<th>Coefficient</th>
<th>Marginal WTP [RMB]§</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>0.1155*</td>
<td>751</td>
</tr>
<tr>
<td>Tarnished nature experience</td>
<td>–0.1464**</td>
<td>–952</td>
</tr>
<tr>
<td>Sceptical attitude * sustainable tourism services</td>
<td>–0.1182***</td>
<td>–769</td>
</tr>
<tr>
<td>Cultural attractions</td>
<td>0.1297***</td>
<td>843</td>
</tr>
<tr>
<td>Natural attractions</td>
<td>0.3057***</td>
<td>1988</td>
</tr>
<tr>
<td>Sex * non-status quo ASC</td>
<td>0.6064***</td>
<td>3943</td>
</tr>
<tr>
<td>Cost [1000 RMB]</td>
<td>–0.1538***</td>
<td></td>
</tr>
<tr>
<td>Log Likelihood Function</td>
<td>–849.5</td>
<td></td>
</tr>
<tr>
<td>P(Chi²); DF</td>
<td>&lt;0.0001; 10</td>
<td></td>
</tr>
<tr>
<td>Pseudo-R² (constant only)</td>
<td>0.083</td>
<td></td>
</tr>
<tr>
<td>Inclusive value (IV)</td>
<td>0.9813</td>
<td></td>
</tr>
</tbody>
</table>

Note: *** significant at \( p \leq 0.001 \)
** significant at \( p \leq 0.01 \)
* significant at \( p \leq 0.05 \);
§ 1 € ≈ 10 RMB. DF: degree of freedom
\( n = 112 \)

Figure 2 outlines the dependence of average marginal WTP for a one level improvement of the STS attribute for five different percentiles of the ‘sceptical attitude’ score (\( n = 112 \)). The least sceptical respondent has a marginal WTP for STS of around 2,456
RMB (~245 €). For the 25 percentile, this drops to around 52 €, and WTP is only slightly positive for the median. For even more sceptical respondents, the model predicts negative marginal WTP for STS before the 75 percentile is reached.

**Figure 2** Marginal WTP [RMB] for one unit improvement of STS for different percentiles of the sceptical attitude STS dimension (n = 112)

5 Discussions and conclusions

Our results indicate that several landscape- and nature-related destination attributes influence destination choice of the queried middle class respondents (see base model results; Table 5). The more ‘convenient’ an offered trip (travel comfort, accommodation), and the more ‘cultural attractions’ as well as ‘natural attractions’ are present, the more likely is the respective trip chosen over a competing alternative. On the other hand, the higher the price and the more ‘tarnished’ (visitor congestion, visible tourism infrastructure) the expected nature experience, the less likely is a trip chosen. Contrary to expectations, the base model (Table 5) suggests that the level of STS offered does not influence destination choice. The only other roughly comparable study indicates mixed results with regard to the acceptance and appreciation of typical sustainable tourism measures: Chinese eco-tourists accept maximum tourist number restrictions on hiking trails, and appreciate access to environmental interpretation at nature reserves. Prescribed camping sites are not even appreciated by ‘dedicated’ eco-tourists, however (Li and Cai, 2004). As expected from microeconomic theory, respondents reporting a higher income are willing to pay a higher maximum price for the same trip.

We used exploratory factor analysis to group 19 items operationalising four constructs from social psychological theory. Factor analysis singled out two ‘positive’ attitudinal dimensions (‘in favour of sustainability’, ‘concern for losing opportunities’) and one ‘negative’ attitudinal dimension (‘sceptical attitude’).
Respondents displaying higher scores at the ‘positive’ STS attitude dimensions were hypothesised to display also higher preferences for the STS attribute. This could not be demonstrated, however.

For the heuristically tested negative STS attitude dimension, one may expect a negative influence on STS preferences. In fact, the ‘sceptical attitude’ has a highly significant negative influence on preferences for all attributes, including the STS attribute. Thus, destination choice does appear to depend on STS levels. The influence depends on the extent to which respondents refrain from subscribing to popular sceptical notions such as ‘sustainable tourism is just another way of charging a higher price’ (negative belief in the response efficacy construct). The construction of parsimonious NL models strengthens the case for an importance of STS for at least part of our respondents to a certain degree.

The analysis of attitudinal influences is supplemented by an analysis of indirect, cultural influences. Exploratory factor analysis forms four dimensions; two depict an ‘ecocentric’ approach to the human-nature relation while the other two dimensions tend towards a domination of nature by humans. We find that the ‘nature needs and deserves to be protected and ‘respect’ dimensions as well as ‘robustness by divine designer’ include a substantial share of items in dimensions similar to the dimensions found by Krömker (2004) with a nearly identical set of items. The ‘non-spirituality’ dimension has only one single item; this item is included in Krömker’s spirituality dimension.

We had hypothesised that respondents with above average spiritual dimension scores would display higher preferences for natural attractions, and would reject destinations offering tarnished nature experiences more strongly. Because no clear spirituality dimension was formed, we tested hypothesis 3 in an inverted form using the ‘non-spirituality’ dimension instead. Above average non-spiritual respondents had, in fact, lower preferences for ‘natural attractions’. An influence on tarnished nature experiences could not be detected. A heuristic test of the interaction term of the non-spirituality dimension with the STS attribute suggests a negative influence on STS attribute preferences.

For an indication of the potential economic scale of the influences of attitudinal factors on destination choice, we turn to the WTP calculation. A marginal WTP of –769 RMB (–77 €) is calculated for one level improvement of the STS attribute for respondents scoring one SD higher in the sceptical attitude. The marginal estimated WTP values for median and 25-percentile scores differ by about 500 RMB (~50 €).

All WTP values reported assume a linear utility function. Also because of the small sample size and the not fully convincing overall results on the influence of the ‘sceptic attitude’ dimension on preferences for STS, the calculation must be regarded with caution. It is safe to conclude, however, that a substantial share of Chinese middle class tourists question the benefit of paying for the environmental and social improvements associated with the offered suit of STS services. At the same time, the generally positive attitude toward STS documented did not translate into sustainable consumption and production opportunities in the tourism industry.

On the other hand, ‘non-spiritual’ images of nature reduced the economic appreciation of wild animal species and a magnificent landscape. Although a positively ‘spiritual’ images of nature dimension was not detected in this study, the results on the ‘non-spirituality’ dimension suggests a persisting importance of the nature-related, spiritual traditions of the Daoist and Buddhist roots of traditional Chinese culture with regard to nature- and landscape-based destinations in southwest China (cf. Jenkins,
As higher educated respondents tend to report less strongly non-spiritual images of nature, the rapid advancement of formal education in China may even support preference change in favour of STS. The correlation of age with the ‘robustness by divine designer’ dimension points to a similar trend in an aging Chinese society.

We can derive two main implications for sustainable tourism development in landscape- and nature-based destinations in southwest China. First, local governments and business operators should be aware that there is evidence that a substantial share of Chinese middle class tourists has a positive WTP for STS. Furthermore, natural attractions displaying some naturalness of the landscape and conveying a sense of solitude that facilitate a little ‘tarnished’ nature experience may be key factors to attract Chinese middle class tourists (Table 5). The results call for more governmental and business commitment for improving STS and/or for effective measures to safeguard the natural and cultural heritages of southwest China. Measures that contribute to the maintenance of landscape and of species and that reduce tourist congestions should be implemented first. Second, tourist acceptance of STS appears to be negatively influenced by a sceptical attitude toward sustainable tourism. Today Chinese tourists have few opportunities to positively experience STS because of little availability. Thus, it appears promising to focus on providing and communicating STS that are clearly important and demonstrably effective.

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References


The Dao of the sceptic and the spiritual


Notes

1 Because of space restrictions, we can only selectively outline the most important features of these three approaches.