Diskussionspapiere

Discussion paper

Chinese tourist preferences for nature based destinations

-a choice experiment analysis

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We are grateful to receive your comments, suggestions or questions about our study.

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Abstract: This paper used a choice experiment (CE) method to investigate Chinese middle class tourist preferences for nature based destinations in southwestern China. Interview data from 616 respondents presented that in general, the respondents preferred natural based destinations in southwestern China with more features of *convenience, cultural and natural attractions*, but less *tarnished nature experiences, sustainable tourism services* and *cost*. The effect coded models revealed in further details that the *developed convenience* level, the *magnificent natural attractions* and *original cultural attractions* were most preferred by the respondents. Though the general negative impact of *tarnished nature experiences* on destination preference, it was not the pure wilderness, but the mixture of naturalness and basic infrastructures, and occasional other visitors, were mostly welcomed by the respondents. The *limited sustainable tourism services* got modest positive appreciation but the *extensive sustainable tourism services* level was not preferred by the respondents.

Key words: preference, choice experiment, Chinese middle class tourists, nature based destinations, southwestern China,

1. Introduction

With 19% average annual growth of domestic tourist numbers, the Chinese domestic tourism market has undergone remarkable growth during the past twenty years. In 2006, Chinese domestic tourists reached 1,394 million person-trips, increasing by 15% from 2005. Domestic tourism expenditure was 623 billion RMB (~62.3 billion Euro; 1 RMB≈ €0.1), an increase of 18% over 2005 (CNTA 2006). A significant contribution to the growth was from the expanding number of China top and middle income earners who considered travel a "birthright" (WTTC, 2006: 15).

Southwestern China is a popular tourism region in China which includes Sichuan Province, Yunnan Province, Guizhou Province, Chongqing Municipality and the Tibet Autonomous Region. It harbours one of 25 global biodiversity hotspots (Myers et al., 2000)

and 10 UNESCO world heritage sites (UNESCO, 2007). In 2001, the 'national campaign for the development of western China' highlighted tourism as a priority among economic sectors to be developed (Zhu, 2001). The policy boomed up tourism industry development in southwestern China. Demand side study of destination factors that influence Chinese domestic tourists destination choice are crucial to assess the trends and prospects of tourism industry as well as its impacts on culture and environment.

To our knowledge, no study has yet been conducted in mainland China that specially targets tourist destination choice from an economic preference perspective. In particular, we report on results from a welfare-economic choice experiment study that describes destination-related preference details of Chinese middle-class tourists and the segmentation based on their socio-demographics.

We use a choice experiment (CE) (Hensher et al., 2005) method to investigate Chinese middle class tourist preferences for nature based destinations in southwestern China. First, the general influences of six destination attributes, including convenience, tarnished nature experiences, sustainable tourism services (STS), cultural and natural attractions and cost, are discussed. Next, the more detailed analysis was furthered with the levels of each attribute to examine the accuracy of the linearity assumptions on which the destination attributes analysis was based. The marginal willingness-to-pay (WTP) and WTP for the attributes and levels were also calculated respectively. In the final step, socio-demographics influences on the destination choice preferences were examined to elicit information on the middle class tourist segmentations.

The next section provides an overview of research that applied the CE method in tourism and leisure studies, as well the research focusing on Chinese tourist destination choice. Section 3 reports the data collection and analytical methods for CE. Results are presented in section 4 and followed by the discussions and conclusions in section 5.

2. Literature review

2.1 A destination choice experiment (CE)

Choice experiment surveys were widely used in marketing research to elicit economic preferences for product characteristics (e.g. Fredrik et al., 2007; Maynard et al., 2004). The method was also expanded to tourism and leisure studies over the past twenty years for various topics, and has proven to be a versatile stated preference method (Apostolakis & Jaffry, 2005; Breffle & Morey, 2000; Crouch & Louviere, 2004; Hanley et al., 2002; Huybers, 2003; Kelly et. al, 2007 a/b; Louviere & Timmermans, 1990; Morley, 1994; Naidoo & Adamowicz, 2005; Pettersson, 2001). Hearne and Salinas (2002) concluded in their study that the CE is a feasible tool to analyze user preferences for the management of protected areas in developing countries. The studies done by Adamowocz et al. (1994) and Haener et al. (2001) proved that answers to hypothetical destination choice questions have been shown to reflect actual destination choice well.

Some studies applied CE to measure tourists' preferences for tourism services and products and different demand segments. For example, Apostolakis and Jaffry (2005) investigated tourists' preferences for hypothetical product development in two Greek heritage sites. Pettersson (2001) evaluated tourists' preferences for the alternative products/activities, access and price of Sami indigenous tourism in Sweden.

A rich body of research applied the CE to the destination choice research. Such application allowed for the quantitative investigation of tourist destination choice preferences by the econometric estimation of destination choice models based on destination or trip characteristics (e.g., Crouch & Louviere, 2004; Eymann & Ronning, 1997; Hanley et al., 2002). The studies provided statistical evidence of the determinant site attributes that influence the choice of destination. Huybers (2003) assessed the determinants underlying the short-break holiday destination choices of prospective domestic Australian tourists with the CE method. The results showed that the quality of amenities and the level of crowdedness

were important to the utility of nearly all studied destinations. Naidoo and Adamowicz (2005) applied the CE to examine the demand of tourists and foreign residents in Uganda for nature-based tourism. The studies revealed that tourists demonstrated increased willingness to visit a protected area when the number of bird species increased (the indicator of biodiversity level).

Traditional socio demographics as well as attitudinal and psychological variables can be also incorporated into the CE model (e.g., Bowden, 2006; Apostolakis & Jaffry, 2005). In Huybers' study (Huybers, 2003), tourist's ages had significantly negative impacts on some destinations. But incomes had significantly positive influences on all destinations.

Some studies applied CE to assess ecotourism or sustainable tourism development (Adamowocz et al., 1994; Hearne & Salinas, 2002; Kelly et al., 2007a; Kelly et al., 2007b). Kelly et al. (2007a) studied preferences of tourists to Whistler mountain resort (Canada) for a set of hypothetical tourism destination eco-various planning options. Though overnight visitor and day visitor demonstrated different preference patterns, in general, tourists preferred options which could increase the overall eco-efficiency of destinations. They demonstrated the willingness to afford the additional fees for services which might help to counterbalance the environmental impacts of their behaviour. A study of Costa Rica ecotourism development (Hearne & Salinas, 2002) showed that though the preferences for national and international tourists were similar in direction, however, foreign tourists were more concerned of the site congestion.

2.2 Research on Chinese tourist destination choice

Chinese tourism research and planning is traditionally conducted from a supply-side perspective (Bao et al., 2002; cf. Zhang, 2003). Regional tourism planning and development as well as the social, environmental and cultural impacts of tourism are the main focus since the 1990s (Zhang, 2003). The policy encouragement of tourism development in western China in 2001 made southwestern China a focus region for tourism planning and development research (cf.

Cater, 2000; Ge, 2002; Wu, 2001). Lately, the supply-side of "ecotourism" has received some attention in addition to the supply-side of tourism in general (e.g. Fang, 2002; Li, 2004).

Starting from the first studies in the 1990s (Wu, 1997; Zhang et al., 1999), most current demand-side contributions continue to focus on aspects such as the simple relationship between destination choice and geographical distance (e.g., Bao et al., 2002; Huang & Xiao, 2000; Wu & Cai, 2005). The studies revealed that accessibility and distance served as influential factors in tourist destination choice decisions. For example, Zhang et al. (1999) studied spatial pattern of tourists to Jiuzhaigou, one of UNESCO natural heritage site in southwestern China. A distance decay model was used to explain tourist destination choice patterns. Travel distance of the tourists to a destination was positively correlated with education and self-perceived income.

The importance of tourist motivations and preferences has only recently been acknowledged (e.g., Mao et al., 2005; Li & Cai, 2004; Zhou et al., 2006). Bauer and Chan (2001) investigated tourists to Hongkong, including tourists from China and other countries, and reported that noise levels and cleanliness of the street, and air quality were of concern to visitors. A study conducted in eastern China (Zhou et al., 2006) revealed that gender, education, income and travel expenditure had significant influences on tourists' acceptance and willingness to pay to the certificated 'ecotourism' products.

3. Methods

3.1 Study area

The destination area chosen for the CE is mountainous southwestern China (Figure 1), a global biodiversity hotspot (Myers et al., 2000) and officially designated tourism development area (Ge, 2002). This area has rich tourism resources which include 5 UNESCO natural heritage sites, 4 UNESCO cultural heritage sites and 1 UNESCO cultural and natural heritage site (UNESCO, 2007). Thirty six ethnic minorities live in the region, which accounts for around two

third of the total of 56 minorities in China (CCG, 2007).

The investigation was conducted in two national tourist source areas (Figure 1): Beijing (about 14.8 million citizens) representing East Coast agglomerations, and the provincial capital city of Chengdu (Sichuan Province), one of the biggest urban agglomerations in southwest China (around 10 million citizens). Similar with the study of Huybers (2003) and Naidoo and Adamowicz (2005), the investigation was conducted in two tourist source areas instead of the destinations in southwestern China to prevent self-selection bias.
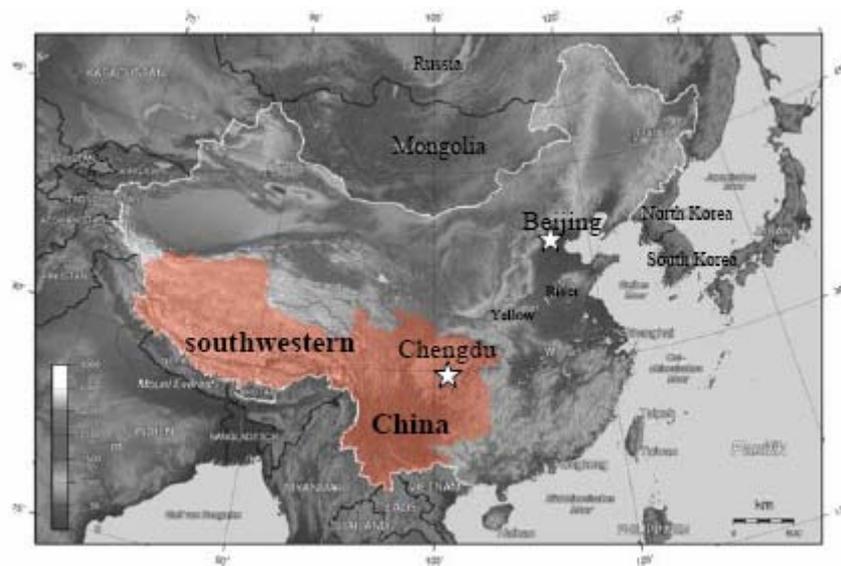
Figure 1: Map of research region and investigation sites

3.2 Attribute design

CE is rooted on Lancaster's 'characteristics' theory of goods (Lancaster, 1966), and on random utility theory (McFadden, 1973). Lancaster (1966) suggested that consumers derive satisfaction not from goods themselves but from attributes the goods provide. The first step of designing CE instruments was to identify attributes that characterized southwestern China destinations. Usually the options were gathered by meeting with destination managers, experts and survey of the visitors. Some studies had several attributes in common though the research was done in different sites. A CE study on ecotourism development in Costa Rica (Hearne & Salinas, 2002) and Australia (Huybers, 2003) used a travel convenience attribute as well as access restrictions on certain trails at the destination site. The studies of domestic Australian

tourists destination choices (Huybers, 2003), the Greek heritage attractions study (Apostolakis & Jaffry, 2005) and climbing in Scotland (Hanley et al., 2002) used the attribute of crowdedness. Kelly et al. (2007) included 'environmental friendly transportation options', the amount of protected area as well as resource saving options (renewable energy use and waste recycling) as independent attributes in their CE. In Scotland research (Hanley et al., 2002) and Uganda biodiversity and nature based tourism research (Naidoo & Adamowicz, 2005), landscape features/scenic quality was one of the CE attribute.

To optimize this step in our study, the first author conducted 22 qualitative in-depth interviews with Chinese middle class respondents who were interested in travelling to southwestern China in spring and autumn 2005. From lists of factors that tourists paid most attention to when making their decisions to take a trip, five of the following attributes were identified to describe nature based destinations in southwestern China (Table 1). Sustainable tourism services attribute was the only attribute designed by the authors due to the research interests.

Table 1 Destination choice attributes and levels

Destination attribute	Attribute levels		Linear coding[#]	Effect coding[#]
Convenience at places just outside of attraction site	1.	No car roads, only trails; no hotels or hostels, tourists need to bring their own food; (*none* level)	1	1, 0, 0, 0
	2.	Difficult motor access; several simple hostels or hotels; (*difficult* level)	2	0, 1, 0, 0
	3.	Old roads; some common hotels and restaurants; (*limited* level)	3	0, 0, 1, 0
	4.	National roads and highways; many hotels from two stars to four or five stars, and many restaurants; (*advanced* level)	4	0, 0, 0, 1
Tarnished nature experience (Possibility of experiencing Nature)[§]	1.	Sense of solitude and tranquillity; no tourism infrastructure; no other visitors; (*virgin land* level)	1	1, 0, 0, 0
	2.	At times, some basic tourism infrastructure (restaurants, stores, toilets) visible; meet other people every hour; (*basic* level)	2	0, 1, 0, 0
	3.	Have big scale tourism infrastructure (cable car, Karaoke), always be aware of "this is a tourism place"; meet other people every minute; (*dispersed* level)	3	0, 0, 1, 0
	4.	Many kinds of tourism infrastructures everywhere; many "artificial" attractions; very crowded; (*packed* level)	4	0, 0, 0, 1
Cultural attractions	1.	None; (*none* level)	1	1, 0, 0, 0
	2.	Some traditional old buildings mixed with many modern buildings; no original living culture; (*endangered* level)	2	0, 1, 0, 0
	3.	Several traditional local buildings mixed with many modern houses; one temple without usage any more; modernized local customs and culture; (*modernized* level)	3	0, 0, 1, 0
	4.	Well preserved traditional local buildings; temples with monks playing roles in local people's life; and well preserved original	4	0, 0, 0, 1

		customs and culture; (*original* level)		
Natural attractions[$]	1.	Ordinary landscapes; no precious or attractive species; (*none* level)	1	1, 0, 0, 0
	2.	Magnificent awe-inspiring natural landscapes; no precious or attractive species; (*landscape* level)	2	0, 1, 0, 0
	3.	Ordinary landscapes, many precious species and very abundant species-rich biodiversity (Panda, Golden Monkey); (*species* level)	2	0, 0, 1, 0
	4.	Magnificent awe-inspiring natural landscapes, many precious species and very abundant species-rich biodiversity (Panda, Golden Monkey); (*both* level)	3	0, 0, 0, 1
Sustainable tourism services (STS)	1.	Freely visit every place; no visitor restriction; no resource saving or recycling; no community involvement; (*no* level)	1	1, 0, 0
	2.	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; (*limited* level)	2	0, 1, 0
	3.	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 in local development, and local business involvement (see above); (*extensive* level)	3	0, 0, 1
Cost (local transportation, lodging, food, entrance fee and other expenses)	1.	780RMB	0.78	0.78
	2.	1440RMB	1.44	1.44
	3.	2400RMB	2.4	2.4
	4.	4200RMB	4.2	4.2
	5.	7200RMB	7.2	7.2

[#]: Base level (opt out option) was coded as 0 in linear coding and -1 in effect coding (Hensher et al., 2005: 121). [$]: the natural attractions level 2 and level 3 were coded the same in linear coding because both levels represent a single attraction aspect. [§] The attribute *tarnished nature experience* shows up in the actual choice cards (Figure 2) under the more neutral description *possibility of experiencing nature*.

For each attribute, three to five levels were identified based on representative conditions of nature based tourism attraction sites in southwestern China. The level of the cost attribute designed based on published information on expenses of modest backpackers, self-organized travellers, and costs for commercially organized group-trips, as well as for luxury trips including renting vehicles with drivers.

3.3 Investigation instrument

In face-to-face interviews, each respondent was asked to choose an alternative from a choice set. Each choice set consisted of two different "scenarios" representing tourism trips to southwestern China (Cards A and B), and an opt out/buy nothing option (Figure 2). Every scenario is a profile of different combination of levels of the six attributes. From the attributes and attribute levels, 3,840 (4^4*3*5) single choice scenarios can be generated. An orthogonalisation procedure was used to recover 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. Besides the CE sets, the additional social demographic questions were also included.

Place A		
Convenience at place just outside of attraction site	–	Old roads;
	–	Some hotels/ restaurants
Possibility of experiencing Nature	–	Big scale tourism infrastructure (cable car, Karaoke);
	–	Always be aware of "this is a tourism place";
	–	Meet other people every minute
Sustainable tourism services	–	Freely visit every place;
	–	No resource saving;
	–	No community involvement
Cultural attractions	–	Well preserved traditional buildings;
	–	Temples (alive);
	–	Original customs and culture
Natural attractions	–	Ordinary landscapes;
	–	Many precious species and very abundant species-rich biodiversity (Panda, Golden Monkey);
Cost (including entrance fee, local transportation, lodging and food, etc)	2400RMB	

Place B		
Convenience at place just outside of attraction site	–	Old roads;
	–	Some hotels/ restaurants
Possibility of experiencing Nature	–	Sense of solitude and tranquility;
	–	No tourism infrastructure;
	–	No other visitors
Sustainable tourism services	–	Small conservation program only in core zone (e.g. wild animal monitoring and protection, etc);
	–	Community based restaurant/ hostel/small hotel;
	–	local specialty stores
Cultural attractions	–	Some traditional old buildings/ modern houses;
	–	No original culture alive
Natural Attractions	–	Magnificent awe-inspiring natural landscapes;
	–	No precious or nice species;
Cost (including entrance fee, local transportation, lodging and food, etc)	4200RMB	

Opt out: I would rather like to spend my money on a better trip offered, and have my vacation enjoyment on another trip.

Figure 2: Example of a set of choice cards ('scenarios'; English language text version)

Investigation instrument was iteratively improved by two steps. A set of pre-test interviews (n=50) was conducted in Beijing in autumn 2005. A smaller precursor study (n=213), as well as the repeated qualitative interviews (n=9) were conducted in Beijing and Chengdu. Based on the comprehensive analysis of the qualitative and quantitative data and interviewer and respondent feedbacks, the final version of investigation instrument was designed.

3.4 Administration of the CE survey

The CE was conducted in Beijing and Chengdu from August to November in 2006. We employed and carefully trained local university graduate students as interviewers. Twenty city sub-districts in Beijing and Chengdu were randomly selected from 30 suitable sub districts each. The 30 districts were identified by the following two criteria:

· typical price range of apartments for middle class customers;

· 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.

A number of studies contributed to the discussion on the rising China middle class and how it should be defined/identified (e.g. Farrell et al., 2006; Li, 2003; Li, 2005). No consensus was reached regarding the identification. However, income is always one of the most important indicators. Consequently, we focused on this indicator to "filter" the targeted middle class respondents. According to Chinese income data from the China Central Government (CNBS, 2005) and McKinsey Institute Report (Farrell et al., 2006), the starting income level was set at monthly income of at least 1 500RMB.

A quota sampling procedure provided the best way to interview the middle class target group. Two sampling criteria (quota) were applied: (i) equally distributed genders; (ii) balanced age distribution (above 20).

All respondents confirmed that they like travelling before the formal interview started. After explaining the purpose of the study, the interview started with questions about their residency and monthly income category. If respondent income was lower1 500RMB, the interviewers would ask two more interactive questions and finished the interview. If the respondent income was above 1 500RMB, the interview would continue with the full instruments. The choice sets and attributes were explained to the respondents. A set of sample cards were practiced first to ensure they understood everything properly. Before the choice of sets started, the respondents received a token gift as the appreciation of their participation. In a final section of the interview, further socio-demographic questions were asked. Overall, a total of 4,928 choices were observed from 616 respondents.

3.5 Descriptive and correlation of socio-demographics

The descriptive statistics and correlations of the socio-demographics were calculated with SPSS 15.0. Residency and gender used dummy coding (Table 2). Education and self-perceived

social status used linear coding (Table 2). Monthly income and annual travel expenditures (Table 2) used mean of each level for calculation.

Kendall's tau-b was used for the correlation estimation. In self-perceived social status, 32 respondents were unsure with their social status. A co-linearity diagnostics linear regression with Durbin-Watson was used to predict the values for the 32 respondents. The other five socio-demographics (Table 2) were pointed as independent values to estimated self-perceived social status value for the 32 unsure respondents. The predicted values were then substituted into the data base to allow further analysis with the full sample.

3.6 Nested Logit (NL) model

For the analysis of the CE data, a set of Nested Logit models was calculated with NLOGIT 3.0. Preliminary analyses indicated the risk of violations of the independence from irrelevant alternatives (IIA) condition necessary for the application of (the simpler) conditional logit analysis. Because NL does not rely on the IIA assumption, an eligible NL tree structure was identified, and the corresponding models estimated. The inclusive value was set to 1.0 for the degenerated branch, and the model initiated with starting values obtained from a non-nested NL model (Hensher et al. 2005: 536). All scale parameters were normalized at the lowest level (RU1). A NL base model includes an alternative specific constant (ASC) (Table 4). The 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 southwestern China beyond the information given by the choice cards A and B.

Where applicable, pseudo R^2 ('constants only' value), Log likelihood function 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 value of ordinary least squares (OLS), for example, values between 0.07-0.08 correspond to R^2 values of 0.22 to 0.24 value in OLS model equivalent (Hensher et al., 2005: 338). IV statistics are significantly different

from 1. All NL models from which results are presented are overall highly significant (p-value of Chi²-Test < 0.001).

3.7 Linear coding attribute and effect coding attribute

In the analysis, two different types of coding systems (Table 1), linear coding and effect coding, were used for the NL models. The use of a single (linear) attribute or several effects coded variables representing a single attribute will lead to different degree of accuracy of the utility function.

Linear coding is based on the assumption that levels of each attribute have evenly increased/decreased linear relationship. Linear coding model produced a single parameter for each attribute. It generated a linear estimate for the attribute. Linear coding model captures the trend of the preference for each attribute; however, it can not reflect the full details of attribute levels distribution if the relationship is quadric or polynomial.

Effect coded attributes revealed more detailed information about preference differences towards levels of each attribute. Effect coding allows for non-linear effects in the levels of attributes and "analyst may obtain a better understanding of the true utility function" (Hensher et al., 2005: 120). It is accomplished by creating a number of variables for each coded attribute. The number of new variables created is equal to the number of levels of the coded attribute minus one.

Based on Hensher et al. (2005: 344), it is possible within a model specification to includes both linear and non-linear coded attributes. In analysis, five destination attributes (beside cost attribute) were linear coded first and NL model estimation for destination choice was produced (Table 4). Next, the attributes were changed to effect coding respectively and were substituted into the NL base model one by one to estimate distributions of utility function (Figure 3).

The "opt out/buy nothing" option was coded as 0 in linear coding model and -1 in effect coding models (Hensher et al., 2005: 121).

3.8 Interaction terms

To test for the influences of socio-demographics on destination attribute levels, interaction terms between each level of the attributes and socio-demographics were generated. The interaction terms were included one-by-one as single term into the effect coded attribute models and the impacts were examined.

The coefficients of the interaction terms were then multiplied with mean of the related socio-demographics; therefore the weighting of the coefficients can be directly compared with the average respondents (Table 5).

3.9 WTP calculation

The estimation of statistically significant attribute coefficients allows for the calculation of welfare measures. For attributes with a linear relation, the maximum willingness-to-pay for a 1 unit/level change of trip attribute S_g ("marginal" WTP) equals the ratio of the respective coefficient b_g and the coefficient of the cost attribute b_y (Figure 4):

$$mWTP(S_g) = -\frac{b_g}{b_y}$$

To examine the accuracy of marginal WTP with the linear coding attributes, WTP for each level change were also estimated with effect coding attributes. Although not all level coefficients were statistically significant, the elaborated WTP differentiation in levels could still bring better knowledge on respondent preferences (Figure 5). WTP for one level change from L_n to L_{n+1} equals to the difference between WTP (L_{n+1}) and WTP (L_n):

$$WTP(L) = WTP(L_{n+1}) - WTP(L_n) = -\frac{b_{n+1}}{b_y} - (-\frac{b_n}{b_y})$$

4. Results

4.1 Socio- demographics of the respondent

Figure 3 demonstrates the profile of the respondents' socio-demographics. There were 307 respondents from Chengdu (49.8%) and 309 (50.2%) from Beijing (Figure 3a). A gender

ratio of 53% male to 47% female was achieved (Figure 3b). Average respondent age was 40 years (Figure 3c). Half (50%) of respondents hold a formal educational degree equivalent to a bachelor degree or above (Figure 3d). This is much higher than the Chinese average of 5.6% (CNBS, 2005). Around 90% of respondents regarded themselves as middle or higher social class while 5.2% were unsure (Figure 3e). With differences between Beijing and Chengdu, mean monthly income per respondent was 3 537RMB (Figure 3f). The average annual travel expenditures were 3 518RMB per respondent (Figure 3g), which was much higher than urban resident average tourism expenditures of 737RMB in 2005 (CNTA, 2006).

Residency		Gender	
Beijing (1)	309	Female (0)	47%
Chengdu (0)	307	Male (1)	53%
Age		**Montly Income**	
Mean	40	Mean	3,537RMB
20-29 years	29.9%	1,500-2,500RMB	46%
30-39 years	31%	2,501-4,500RMB	36%
40-49 years	14.6%	4,501-7,000RMB	11%
50-59 years	13%	7,001-1,0000RMB	5%
Over 60 years	11.5%	Over 10,000RMB	3%
Annual travel expenditures		**Self-percieved social status**	
Mean	3,518RMB	Mean	2.7
Below 500RMB	8.1%	Mean[§]	2.9
501-2,000RMB	37.8%	Lower (1)	6%
2,001-4,000RMB	22.4%	Middle-lower (2)	24%
4,001-7,000RMB	18.1%	Middle (3)	52.8%
7,001-11,000RMB	6.7%	Middle upper (4)	11.7%
Over 11,000RMB	7%	upper (5)	0.3%
		Unsure[§] (6)	5.2%
Education			
Mean	1.6		
Below bachelor degree (1)	50%		
Bachelor degree (2)	40.7%		
Master degree (3)	8.8%		
PhD degree and above (4)	0.5%		

[§]: "unsure" was originally coded as 6 in self-perceived social status. The code was then substituted by the estimated values from a co-linearity diagnostics linear regression. Mean[§] is calculated with the code of 6 and mean is calculated from the estimated values.

Table 2 Overview of respondent socio-demographics

4.2 Correlations of socio-demographics

Table 3 Correlations of socio-demographics

	Residency	Gender	Age	Education	Travel expenditures	Income	Self-perceived social status
Residency (Beijing=1)						0.183**	-0.082*
Gender (male=1)						0.178**	-0.097**
Age				-0.188**		-0.088**	
Education			-0.188**		0.257**	0.389**	0.206**
Travel expenditures				0.257**		0.37**	0.3**
Income	0.183**	0.178**	-0.088**	0.389**	0.37**		0.186**
Self-perceived social status	-0.082*	-0.097**		0.206**	0.3**	0.186**	

** Correlation is significant at the 0.01 level (2-tailed); * correlation is significant at the 0.05 level (2-tailed).

Table 3 showed the correlations between socio-demographics. The strongest correlations (weighting above 0.3) exist between income and education, income and travel expenditures, as well as travel expenditures and self-perceived social status. Respondents with higher income had better education background and spent more money in travelling. Respondents who spent more in travelling regarded themselves with higher social status. Noticeable, the correlation between travel expenditures and self-perceived social status was much stronger than the correlation between income and self-perceived social status.

In details, residency significantly correlated with income but negatively correlated with the self-perceived social status. This indicated that Beijing respondents had higher income but Chengdu respondents perceived themselves with better social status. Gender had significant correlation with income and negative correlation with self-perceived social status. Male respondents had higher income and female respondents had higher self-perceived social status. Age negatively correlated with education and income. The older respondents were less educated and earned less income. Education correlated significantly with travel expenditures, income and self-perceived social status. The more educated respondents had more travel expenditures and income, and higher self-perceived social status; vice versa. Income had significant correlations with all the socio-demographics. Residency in Beijing, male, travel expenditures and self-perceived socio-demographics were positively correlated with income; while age was negatively correlated with it. As for self-perceived social status, it was negatively connected with residency in Beijing and male but positively connected with education, travel expenditures and income.

4.3 Base nested logit (NL) model with linear coding

Table 4 Linear coding nested logit model for destination attribute

Attribute	Coefficient	P
Convenience	0.1067***	0.0000
Tarnished nature experiences	-0.0652**	0.0031
Sustainable tourism services	-0.0623*	0.0309
Cultural attractions	0.1884***	0.0000
Natural attractions	0.4242***	0.0000
Cost [1 000RMB]	-0.1958***	0.0000
[ASC] (Alternative Specific Constant)	-0.2482*	0.0346
Log likelihood function	-4933	
Pseudo-R^2 (constant only)	0.071	
Inclusive value (IV) (±1 SE)	0.842 (±1.96)	
Observations	4928	

***: significant at p≤0.001; **: significant at p≤0.01; * significant at p≤0.05; no indication: not significant. The ASC in brackets as it is

a NL model predictor of destination choice but not a destination attribute. Pseudo R^2 values in reference to a constant only model-

values between 0.07-0.08 correspond to R^2 values of 0.22 to 0.24 value in for the linear model equivalent (Hensher et al.2005:338); IV

statistics are significantly different from 1; n=616.

The NL model with the linear coding presents general preferences for each attribute. All six attributes were significant determinants of destination choice (see Table 4). A positive sign was displayed for *convenience*, *cultural attractions* and *natural attractions*. This indicated that a trip with "more" of the respective attributes were preferred by respondents. By contrast, *tarnished nature experience*, *sustainable tourism services* and *cost* had a negative sign. It indicated that, generally, respondents preferred less visitors and tourism infrastructures around, and valued a sense of solitude and tranquillity. Respondents also preferred less developed *sustainable tourism services*. As expected, *cost* represented a disutility of a trip. Any trip composed of the attribute levels was in total valued a bit less than expected from the sum of the simple utility values in this model (negative ASC).

4.4 Shape of the utility function

Figure 3 displays the non-linear effects of five destination attributes which were effect coded in NL models.

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Log likelihood functions of five NL models range from 4932 to 4922. Pseudo R^2 values are from 0.071 to 0.073, which corresponds to R^2 values of 0.22 to 0.224 in the linear model equivalent (Hensher et al.2005:338). IV values are from 0.592 to 0.688, which is significantly different from 1 and suggest the use of NL model.

The utility function shapes of the *convenience* and *cultural attractions* were close to linearity, but with a smaller improvement from the *none* level to the second level. The shapes indicated that the respondent preferences were stably increased as the *convenience* and *cultural attractions* were improved. *Tarnished nature experiences* and *STS* utility function shapes were like inverted U shape. It demonstrated that the improvement from the *none* level to the *basic* tarnished nature experiences and the *limited* sustainable tourism services were preferred by the respondent. But the estimated utility was significantly declined as the levels were continually improved. Respondents were much less preferred the *packed* tarnished nature experiences and the *developed* sustainable tourism services. The *natural attractions* utility shape was roughly consistent with the linearity assumption, but the *landscape* attraction was much preferred by the respondents in comparison with the *species* attraction.

In the *convenience* attribute, the *developed* (p<0.001) and *limited* (p=0.0033) convenience levels significantly influenced destination choice while coefficients of the *none* and *difficult* levels were close to zero and had no significant impacts (Figure 3a). In the *tarnished nature experiences* attribute, the *virgin land* (p<0.001) level and *basic* (p=0.0016) levels had significant positive influences regarding destination choice. But the *dispersed* and *packed* levels were of no significance (Figure 3b). In the *sustainable tourism services* attribute, the *none* (p=0.0034) level and *limited* (p=0.0017) level were both positively significant concerning destination choice and the *extensive* level had no significant influences (Figure 3c). In the *cultural attractions*, the *modernized* level (p<0.001) and *original* level (p<0.001) had highly significant and positive influences while the *none* level (p=0.0206) had negative and significant impact regarding destination choice. Only the *endangered* level was not significant

at all (Figure 3d). The *landscape* (p<0.001) and *both* (p<0.001) levels of the natural attractions (Figure 3e) were highly significantly and positively in regards to destination choice, and the *none* level (p<0.001) was negatively significant concerning destination choice. Only the species level had no significance had no significance.
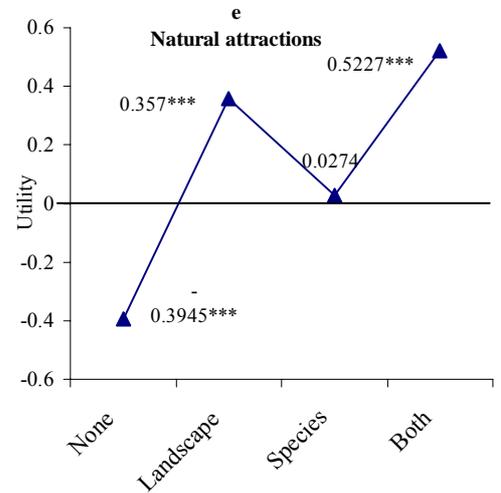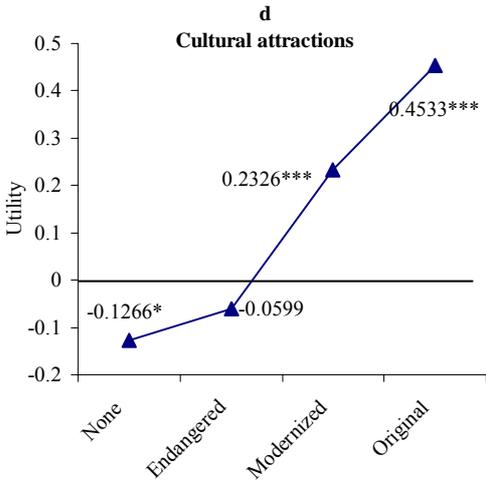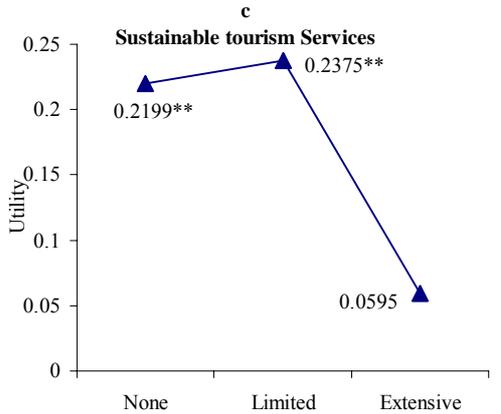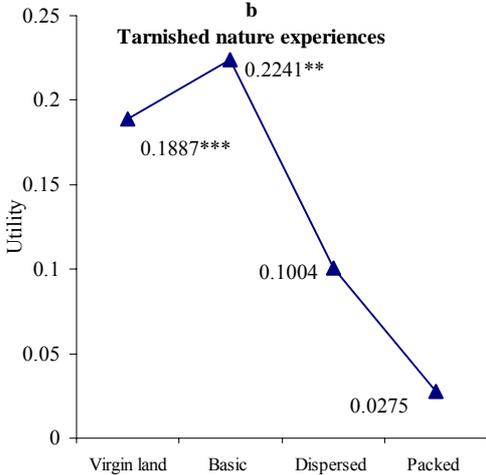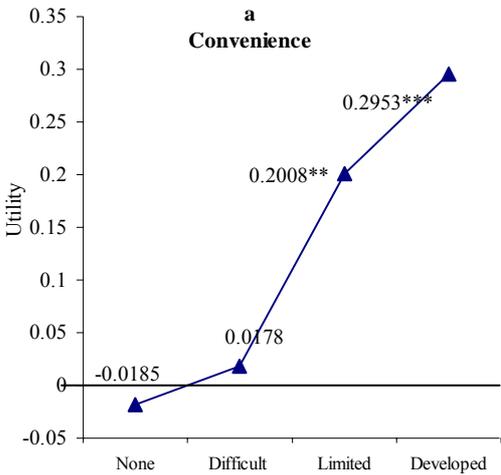
Diagnostic statistics	Effect coding attribute models				
	Convenience	Tarnished nature experiences	Sustainable tourism services	Cultural attractions	Natural attractions
Log likelihood function	-4932	-4932	-4931	-4930	-4922
Pseudo R^2 (constant only)	0.071	0.071	0.071	0.071	0.073
Inclusive value (IV)	0.688	0.652	0.688	0.662	0.592
Observations	4928	4928	4928	4928	4928

***: significant at p≤0.001; **: significant at p≤0.01; * significant at p≤0.05; no indication: not significant. n=616.

Figure 3 Shape of utility function of destination attributes produced by effect coding attributes

4.5 WTP shape of the attribute levels

Figure 4 revealed marginal WTP based on the linear coded attributes and WTP estimation for each level based on the effect coded attributes. The comparisons of two patterns WTP elaborate respondents' preferences differentiations for each level which beyond the estimations achieved by marginal WTP.

According to the linear coded attribute, the marginal WTP estimation for one level improvement of the *convenience* attribute was 545RMB, which meant that the respondents would like to pay 545RMB by average for one level change of the convenience. However, the WTP estimation based on effect coded attribute revealed a much higher WTP of 914 RMB for the change from the *difficult* to the *limited* level. In contrast, respondents had a much lower WTP for improvement from the *no* level to the *difficult* level, with only 181RMB. Only the WTP for the improvement from *limited* level to the *developed* level was close to marginal WTP (472RMB).

The marginal WTP for one level change of the *tarnished nature experiences* attribute was -333RMB. But effect coding model revealed a positive WTP of 174RMB for the change from the *virgin land* level to the *basic* level; WTP was then fallen to -609RMB for the change from the *basic* level to the *dispersed* experiences. The change from the *dispersed* level to the *packed* level had WTP of -359RMB, similar to marginal WTP.

In the *sustainable tourism services* attribute, the marginal WTP was -318RMB for one level improvement. However, the change from the *no* level to the *limited* level obtained a positive WTP of 88RMB. For the change from the *limited* services level to the *extensive* services level, the respondents WTP were decline to -819RMB.

The marginal WTP for one level improvement of the *cultural attractions* attribute was 962RMB. Respondents had the highest WTP of 1 431RMB for the improvement from the *endangered* level to the *modernized level*, followed by WTP of 1 079RMB for the change from the *modernized* level to the *original* cultural attractions. The change from the *no* cultural attractions level to the *endangered* level only received WTP of 326RMB.

The natural attractions attribute had the highest marginal WTP of 2 167RMB for one level improvement. Comparing the WTP from *none* level to the *species* attraction, as well as to the *landscape* attraction, the change to the *landscape* attraction had very WTP of 3 456RMB. The change to the *species* attraction only received WTP of 1 940RMB. WTP for the change from the *species* level to the *both* level was improved to 2 278RMB, while the change from *landscape* level to the *both* level was dropped to 762RMB.

a
WTP [RMB] estimation for the convenience

b
WTP [RMB] estimation for the tarnished nature experience

c
WTP [RMB] estimation for the sustainable tourism services

d
WTP [RMB] estimation for the cultural attraction

f
WTP [RMB] estimation for the natural attractions

Marginal WTP estimation with linear coding attribute

WTP estimation with effect coding attribute
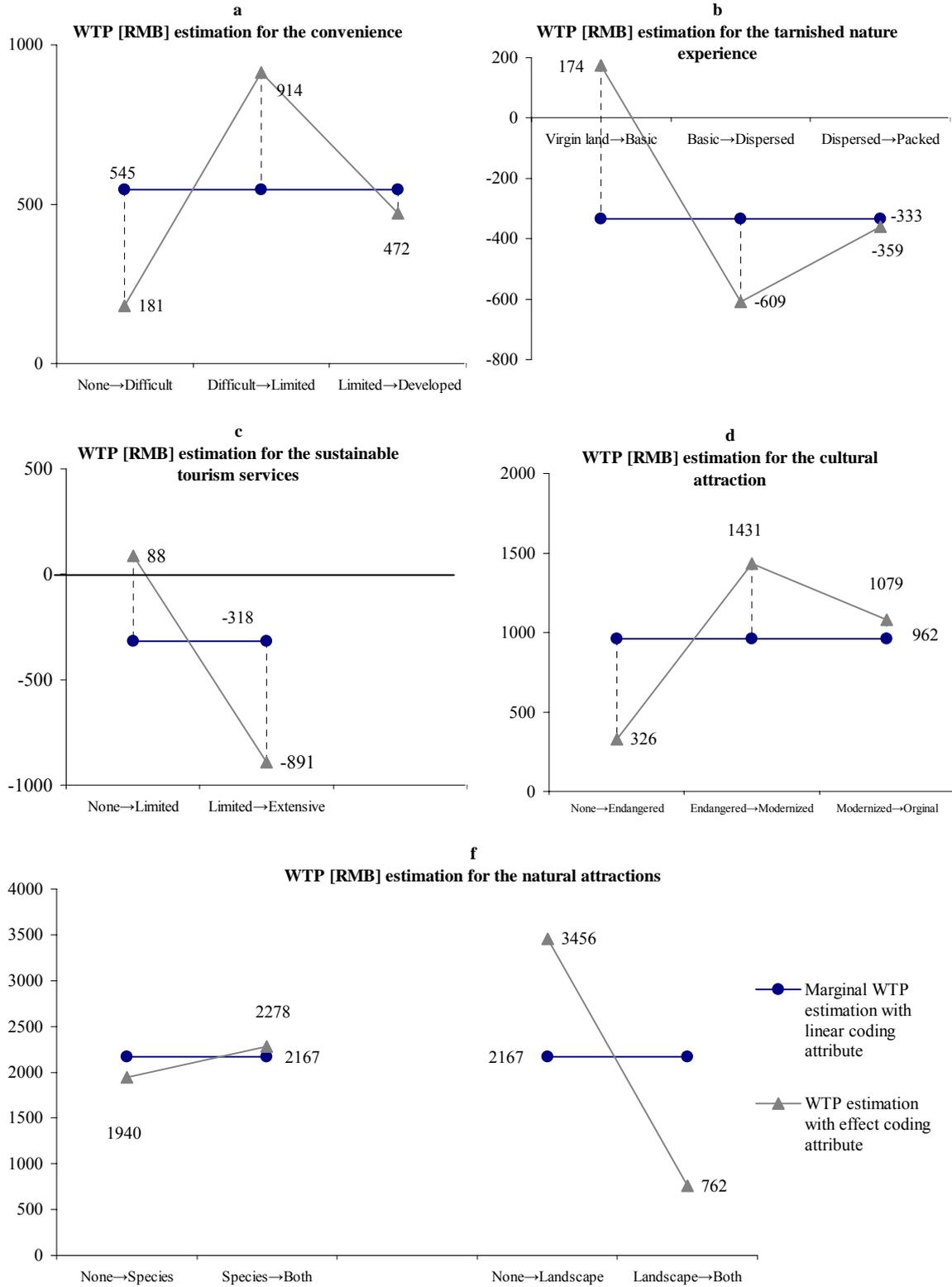
Figure 4 Comparison of marginal WTP and WTP estimations from effect coding attributes

4.6 Socio-demographics influences on the destination choice

Table 5 presented the overview results from destination choice models which assessed how the socio-demographics influenced respondent preferences for the destination choice attributes. It allowed examining the preference differences among the tourists segments.

Log likelihood functions of all interaction models ranges from -4980 to -4928 and pseudo R^2 are between 0.072 and 0.083, which corresponds to R^2 values of 0.22 to 0.243 in the linear model equivalent (Hensher et al.2005:338). IV values are from 0.59 to 0.75, which is significantly different from 1 and suggest the use of NL model (Table 4).

The interaction coefficients signs between age and the *no* and *difficult* convenience level were negative and highly significant, but changed to positive and highly significant when age was interacted with the *developed* level. It revealed that the better convenience levels had greater magnitude to the older respondents in regards to destination choice. In the *tarnished nature experiences* attribute, age negatively influenced the *virgin land* level but positively impacted the *packed* experiences. Older respondents like the *packed* level much more in comparison with the sense of solitude and tranquillity. Age also had negative and significant impacts in regards to the *limited* STS level, *original* cultural attractions, *landscape* and *species* natural attractions. It showed that older respondents were not interested in these services and attractions. In brief, developed convenience was most important for the older respondents by average. They also preferred crowdedness in destination, but not interested in either the sustainable tourism services or cultural and natural attractions.

Education was highly significant to the *original* cultural attractions, and significant to the *difficult* convenience level, *virgin land* experience and *landscape* natural attraction. All the signs were positive. The better educated respondents were very interested in the well-preserved cultural attractions. They also favoured the challenging transportation and accommodation, pure wilderness and solitude and the beautiful landscape.

Travel expenditures and self-perceived social status had coincident influence patterns in regards to destination attributes. They also had strong correlation with each other (see 4.1). Hence we discuss the influences of these two variables together. Travel expenditures negatively influenced the *limited* convenience level but positively affected the *developed* level, and self-perceived social status had negative influence on the *none* convenience level. Respondents with higher travel expenditures and self-perceived social status required better convenience. Travel expenditure and self-perceived social status negatively influenced the *packed* experiences. So respondents with higher travel expenditure and self-perceived social status received strong disutility from the *packed* level. Travel expenditures positively impacted the *original* cultural attractions. Self-perceived social status negatively impacted the *species* level but positively towards the *both* level. It informed that respondent who spent more money for travelling were more care about the *original* cultural attractions and higher self-perceived social status respondents were less interested in the *species* attractions but more preferred the magnificent landscape together with precious species.

Residency significantly and positively influenced the *limited* STS, *endangered* cultural attractions, *none* and *species* natural attractions. On the other side, it negatively influenced the *both* level of natural attractions. Compared with Chengdu respondents, Beijing respondents tended to prefer the *limited* sustainable tourism services and were more interested in the *endangered* cultural attractions, *none* and *species* natural attractions; while Chengdu respondents were more favoured the natural attractions with both the landscape and precious species.

Gender and income had weaker influences concerning destination attributes. Gender only significantly and positively impacted the *virgin land* experience and income only significantly influenced the *none* natural attractions level. It suggested that male respondents were more interested in the naturalness and solitude and respondents with more monthly income preferred the *none* natural attractions.

Table 5 Socio-demographics influences on the destination choice attribute levels

Attribute		Age§	Education§	Gender	Income§	Travel expenditures§	Self-perceived Social status§	Residency
Convenience	**None**	-0.844***					-0.3494**	
	Difficult	-0.436***	0.2237*					
	Limited					-0.1112*		
	Developed	0.78***				0.1464**		
	Log likelihood function	-4870	-4929			-4923	-4926	
	Pseudo R^2 (constant only)	0.083	0.072			0.073	0.072	
	Inclusive value (IV)	0.75	0.69			0.73	0.7	
Tarnished nature experience	**Virgin land**	-0.392***	0.1874*	0.0945**				
	Basic							
	Dispersed							
	Packed	0.316*				-0.1252*	-0.6961***	
	Log likelihood function	-4907	-4928	-4927		-4927	-4923	
	Pseudo R^2 (constant only)	0.076	0.072	0.072		0.072	0.073	
	Inclusive value (IV)	0.68	0.7	0.66		0.66	0.67	
Sustainable tourism services	**None**							
	Limited	-0.328***						0.0953**
	Extensive							
	Log likelihood function	-4910						-4920
	Pseudo R^2 (constant only)	0.075						0.073
	Inclusive value (IV)	0.7						0.66
Cultural attractions	**None**							
	Endangered							0.1127**
	Mordernized							
	Original	-0.3*	0.3026**			0.1351**		
	Log likelihood function	-4910	-4925			-4926		-4919
	Pseudo R^2 (constant only)	0.075	0.072			0.072		0.073
	Inclusive value (IV)	0.65	0.65			0.68		0.68
Natural attractions	**None**				0.0955*			0.1007**
	Landcape	-0.324*	0.2307*					
	Species	-0.26*					-0.3129*	0.1114**
	Both						0.1107*	-0.1008*
	Log likelihood function	-4901	-4917		-4919		-4916	-4906
	Pseudo R^2 (constant only)	0.077	0.074		0.073		0.074	0.076
	Inclusive value (IV)	0.68	0.59		0.59		0.62	0.63

§: the interaction coefficient is multiplied with the mean of the social variable to allow the estimation with the average respondents. ***: significant at $p \leq 0.001$; **: significant at $p \leq 0.01$; * significant at $p \leq 0.05$; no indication: not significant; n=616.

5. Conclusion and Discussion:

The study aimed at revealing the preference patterns of Chinese middle class tourist destination choice to southwestern China nature based destinations. Social demographics and their correlations were presented first. The CE base model demonstrated tourist preferences for six destination choice attributes. A more comprehensive assessment of preferences for different levels of the same attribute was then analysed with effect coded attributes. Marginal WTP from linear coding attributes and WTP from effect coding attributes were compared.

The last section of analysis studied the influences of socio-demographics concerning the destination choice.

In analyzing respondents' preference for destination choice, we used the approach of incorporating both the linear coding and effect coding to generate not only the preference for attributes, but also preference variances in each level. The comparisons of utility function and WTP revealed that the estimation based on linearity assumption of attribute is a gross simplicity which overlooks differentiations at levels. Effect coded attribute reaches better accuracy of preference. One argument may arouse for the calculation of WTP with the non-significant coefficients. The point of mapping WTP at levels is to exhibit the WTP variances in comparison with averaged marginal WTP. With not using WTP amount for scenario analysis but only present the overall WTP deviation from marginal WTP, the use of non-significant coefficients for WTP estimation is acceptable. In addition, the value non-significant coefficients were close to zero. One option is assume the non-significant coefficients equalling to zero. With doing so, WTP estimations for the non-significant coefficient would be even more extreme. Therefore, those coefficients, even were not significant, still the best estimation we can obtain for WTP calculation.

In mapping of the preference patterns of Chinese middle class respondents, *convenience, tarnished nature experience, sustainable tourism services, cultural and natural attraction*s and *cost* all emerged as significant predictors of destination choice. Overall, the respondents preferred natural based destinations in southwestern China with higher levels of *convenience, cultural and natural attractions*, but less *tarnished nature experiences, sustainable tourism services* and *cost*. *Natural attractions* were the most influential attribute regarding the destination choice. In the levels of the *natural attractions*, *landscape* attraction was much more favoured by the respondents than the *species* attraction. Respondents would like to pay most (3 456RMB) for the change from the *none* natural attractions to the *landscape* attraction. Cost was the second influential attribute and naturally the cheaper the

trip cost, the better preferred it was by the respondents. As for the cultural attractions, *original* cultural attractions were most favoured by the respondents and the *modernized* cultural attractions were also appreciated. However, the highest WTP was obtained when *endangered* cultural attractions was improved to the *modernized* cultural attractions (1 431RMB). Respondents also like the developed accessibility and accommodations. However, the respondents appreciated most the improvement from the *difficult* to the *limited* convenience, with estimated WTP of 914RMB, nearly double of the WTP for the improvement from the *limited* to the *advanced* convenience (472RMB).

Although respondents preferred less tarnished nature experiences, the pure wilderness was not Chinese middle class tourists' favourite. The most preferred option was the *basic* level instead of the *virgin land* level. The mixture of naturalness and basic infrastructures, and occasional other visitors, were mostly welcomed and the improvement received WTP of 174RMB.

The *sustainable tourism services* (STS) in general negatively impacted the destination choice. However, the destination utility increases with the *limited* level of sustainable tourism services and attained a positive WTP of 88RMB. It indicated that some initiated services, like community based business and small conservation programs, were still appreciated by the respondents.

The influences of socio-demographics on the destination attribute levels revealed three segments among middle class respondents: the "conventional" group, which was mainly consisted of the older respondents, expected good convenience and had no particular requirements for the destination attractions. The "adventure" group which is featured with well educated respondents. The group preferred difficult transportation and accommodation and were highly attracted by original cultural attractions, pure wilderness and magnificent landscape. The "epicurean" group which included respondents with higher travel expenditures and self-perceived social status, required high convenience as well as high

quality of cultural and natural attractions, and strongly opposed the crowdedness around.

In many destination choice studies, the increased convenience always has positive impacts (Adamowicz et al., 1994; Huybers, 2003; Naidoo & Adamowicz, 2005). In the study of domestic Australian tourist preference for short-break destination choices (Huybers, 2003), the results also revealed that tourists received utility from the "pleasantly busy" level of the "crowdedness" attribute. The study of climbers in Scotland (Hanley et al., 2002) presented that crowdedness were not preferred by the climbers, similar results were also reported by Apostolakis and Jaffry (2005). In Naidoo and Adamowicz (2005) study of nature-based tourism in Uganda, bird species, wildlife and both forest types (primary and secondary) all have positive effects regarding choice model. Hanley et al. (2002) and Hearne and Salinas (2002) also presented that more scenic areas were preferred by the respondents. In Kelly et al. (2007) investigation of Canada tourists, eco-efficient options were in general preferred by the respondents although the degree of support differed by market segments. Investigation of Costa Rica tourists reported that domestic tourists were not preferred access restrictions (Hearne & Salinas, 2002). A study of tourist WTP for eco-certificated products which conducted in southeastern China (Zhou et al., 2006) reported that regardless of product types, the cheaper products were always more preferred. And the constraint of the price may hint that respondents in our study may concern of the cost of STS and afraid of expensiveness of buying such services. It could be the reason that the improvement of STS from the *limited* level to the *extensive* received very negative WTP; and the change from the *no* to the *limited* STS obtained modest positive STS.

The results from our study suggested to the tourism operators in the management and business sectors that in the arena of the southwestern China domestic tourism market, the maintenance of the natural beauty and cultural attractions were crucial to attract the young and middle-age middle class tourists. Although the general negative influence of sustainable tourism services, its contributions to the maintenance of the natural beauty and cultural

attractions would certainly added value to the destination attractions. The important point of developing sustainable tourism services is to customize the tourist's acceptance of the products and financial capacity. It is necessary to build up the practices step by step and initiate from the basic STS services.

The destinations should promote products and services based on its attractions and conditions and targeting certain groups. The mass tourism sites fit the preferences of the elder "conventional" group well. The newly developed destinations may target the well-education respondents. The preference of the pure wilderness of the group also makes them the possible potential consumers for the sustainable tourism services. The well-developed world heritage sites could be ideal destinations for the "epicurean" group. However, the measures of controlling the crowdedness and infrastructures are necessary to meet the "epicurean" group preferences. In addition, precious species in some destinations are a good attraction to Beijing tourists.

One limitation of the study was the quota-sampling approach which cannot guarantee representativeness of the sample for Chinese middle class consumers. The lack of the middle class population statistics in Beijing and Chengdu at present makes the representative survey design impossible. The reported data on absolute willingness-to-pay values should be treated with caution; there are no indications in the sample, however, that the discussed influences on WTP are actually biased.

For the future studies, the application of the study in other tourist source cities, like Guangzhou and Shanghai, would donate to confirm or revise the accuracy of the result from the study. Future studies should also evaluate in full details of the preferences for sustainable tourism services/products to elicit what services will be accepted by the tourists and what will be not, and why. The evaluation of the quantitative tolerance levels of tarnished nature experience would also be valuable to instruct the destination design and management.

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Appendix 1: questionnaire

Researchers: Yan Jiong, Dr. Jan Barkmann, Prof. Rainer Marggraf

Dear madam/sir:

We are conducting an investigation on Chinese tourists' preference. The purpose of the research is to find out what Chinese tourists are really interested in when they go traveling to nature/landscape destinations. We will mainly ask questions on your preference of a trip to southwest China. The results will be used to improve tourism planning in that region.

You are not answering a commercial questionnaire. This is an academic research project. The research is conducted under an official cooperation agreement between Georg-August-University Goettingen, Germany, and the Center for Tourism Research and Planning, Institute of Geographic Science and Natural Resources Research, China Academy of Sciences, Beijing.

All the respondents of our investigation are chosen randomly. The whole interview may take you around 20 minutes. With agreeing to participate in the interview, you will greatly improve the prospects for a good tourism development in Sichuan and Yunnan provinces.

All the information you give to us during interview will be treated confidentially. All personal data will only be used for scientific research and will not be released to any third party.

We highly appreciate your participation in our investigation.

Answer Sheet (Beijing)

Interview date：	Interview location：
Interviewer：	Beginning time：
	Ending time：

1. Gender： ☐F ☐M

2. Age： ☐20-25 ☐26-30 ☐31-35 ☐36-40 ☐41-45 ☐46-50 ☐51-55 ☐56-60 ☐61-65 ☐older than 65

3. Which transportation would you like to you take if you take a private vacation to Southwest China (e.g. Beijing to Chengdu)?

☐ Drive by yourself ☐ Taking the flight (RMB2880 for round trip)

☐ Taking the train (RMB1000-1600 for round trip: hard sleeper to soft sleeper)

4. How often do you take part in outdoor sports clubs activities (e.g. hiking, horse riding, cycling, rock climbing, tracking stream, etc)?

☐once a week ☐twice a month ☐once a month ☐once every two month ☐once a quarter ☐three times a year ☐twice a year ☐once a year ☐never

5. Is your work related to environmental protection/biology/geography/gardening/outdoor business/botanical garden/zoo, etc?

☐yes ☐No

6. Your monthly income (before tax) range-including salary and other sources income：

☐1,500－2,500RMB ☐2,501－3,500RMB ☐3,501－4,500RMB ☐4,501－5,500RMB

☐5,501－7,000RMB ☐7,001－8,500RMB ☐8,501－10,000RMB ☐10,001-13,000RMB

☐13,001-16,000RMB ☐16,001-19,000RMB ☐ab 19,000RMB

7. ☐Convenience and comfortable of transportation and lodging ☐Experience nature

8. ☐Prefer cultural attraction ☐Prefer nature attraction

Please mark the choices of respondents in the table below：

Block 1

Cards set number	Place A	Place B	Option C
Sample card			
1			
2			
3			
4			
5			
6			
1 1			
2 3			

Block 2

Cards set number	Place A	Place B	Option C
Sample card			
8			
9			
1 0			
1 2			
1 3			
1 4			
1 5			
2 4			

Block 3

Cards set number	Place A	Place B	Option C
Sample card			
7			
1 6			
1 7			
1 8			
1 9			
2 0			
2 1			
2 2			

Please choose one option which you agree mostly in each expression:

	Totally agree ++	Agree +	Neutral O	Disagree -	Totally disagree - -
1. I am really afraid of loosing the future opportunity for travel enjoyment in southwest China if the tourism development is not done in a sustainable manner.					
2. Humans should protect nature because it is useful and provides a lot of advantages for us.					
3. Ignoring the law of the nature will eventually bring the disaster to humans.					
4. Making sure the members of local community can run tourism related businesses is essential for harmonious tourism development in southwest China.					
5. It is better to keep processes in nature under control in order to not endanger human security.					
6. The earth is like a spaceship with only limited room and resources.					
7. In many scenic and historical/cultural sites, restrictions of entering certain area and stepping on/touching objects are a nuisance for me.					
8. I feel threatened by the ongoing destruction of					

nature.					
9. Human and nature, including animals and plants have the equal right to exist.					
10. It would be a big financial burden for me to pay more for tourism.					
11. Nature is sacred because it is created by God.					
12. Humans can discover the law of nature. But humans cannot change the law of the nature.					
13. Without a scientific conservation program in place, many natural destinations in southwest China are in danger of losing their natural attractions.					
14. Nature has its own right of existence; therefore it is not allowed to destroy nature anywhere for human needs.					
15. Without humans, nature would not be complete.					
16. Having garbage cans is important to protect the beauty of the natural and cultural attractions in southwest China.					
17. Humans should protect nature because it enriches our lives by its wonderful magnificence.					
18. Nature always recovers (by itself), no matter what humans do.					
19. Putting a lot of members of local communities in charge of tourism businesses can have bad impact on service quality and trip experience.					
20. Not humans can protect nature; only God has the power to do so.					
21. Humans should protect nature because it provides exciting challenges and adventures.					
22. My friends and family expected me to feel responsible for maintain the attraction of the site.					
23. As the supreme beings on earth, human should not tarnish nature.					
24. Nature is important, but neither has a soul nor is sacred.					
25. Local government should make sure that growth of tourism in southwest China does not damage natural and cultural heritages.					
26. Humans belong to nature the same way as animals and plants do.					
27. Human should protect nature because it has a right of existence in itself in the same way that all and everything living does.					
28. In the grand design of world, humans have the same value with other living beings.					
29. In my opinion, extra charge for tourism services such as green buses is just an excuse to charge more (rip off tourist).					
30. Plants and animals do exist primarily for human use.					
31. Humans must follow the law of nature in order to live in harmony.					
32. If I know for sure that the facilities in a tourist site benefit the local environment, I would pay more for such facilities.					
33. Humans should protect nature because it provides recreation and quietness.					

34. Humans have the right to use natural resources of any kind they want to.					
35. I would be very sad if local cultures in southwest China would lose some of their originality because of tourism development.					
36. Nature is sensitive to any kind of interference. Even small interference can lead to big and irreversible damage.					
37. It would be a shame if the local people in southwest China would not benefit the most from tourism development in that region.					
38. When human interfere with nature, they should follow the law of proper proportion.					

9. Profession: (retired people is classified according to the professions before retirement)
☐Government/agencies official   ☐Managers   ☐Private Enterprise Owner
☐Professionals   ☐Staff in government/agencies ☐Self-hired businessman
☐Workers in service industries ☐Workers in industry   ☐Workers in agriculture
☐Unemployment/half unemployment ☐Military/policeman   ☐Housewife   ☐Student

10. Educational background：
☐under B.A   ☐B.A   ☐M.A   ☐PhD ☐Above PhD

11. How much do you spend in traveling by average a year (including weekend's trips)?
☐Below 500RMB   ☐500-1,000RMB   ☐1001-1,500RMB   ☐1,501-2,000RMB
☐2,001-3,000RMB   ☐3,001-4,000RMB   ☐4,001-5,000RMB   ☐5,001-7,000RMB
☐7,001-9,000RMB   ☐9,001-11,000RMB   ☐ab 11,000RMB

12. Based on your current conditions, what is your self-perceived social status?
☐lower   ☐middle-lower   ☐Middle   ☐Middle-upper   ☐upper

☐Do not know

Interviewer notes： Feedbacks from the respondents：

Appendix 2: a set of Chinese version choice cards with visual aid

(12)

景区 A	
景区外的硬件设施	— 崎岖颠簸的简易车道； — 有简易的小旅馆或当地人家的家庭旅馆；
体验自然的可能性	— 有时看到一些基本的旅游基础设施（如饭店，卫生间或商店）； — 每小时遇到其他游客；
生态旅游发展程度	— 可自由进入景区任何地点； — 无环卫和资源再利用设施； — 当地居民没有参与旅游业发展；
自然风光吸引力	— 普通的自然风景； — 无珍稀动植物；
人文吸引力	无
价格（在当地的门票，交通费，食宿及其它费用）	4 200 元

(12)

景区 B	
景区外的硬件设施	— 崎岖颠簸的简易车道； — 有简易的小旅馆或当地人家的家庭旅馆；
体验自然的可能性	— 宁静和远离喧嚣的感觉； — 没有任何旅游基础设施； — 没有其他游客；
生态旅游发展程度	— 有缓冲区； — 缓冲区和核心区有科学研究项目（如野生动物监测保护等）； — 有绿色大巴，生物能利用（沼气，太阳能，风能等）和废水处理设施等； — 当地居民可参与当地发展和旅游经营的决策
人文吸引力	— 保存完好的老房子； — 寺庙里有僧人，寺庙在当地人的生活中有重要作用； — 原生态的本地文化和民俗。
自然风光吸引力	— 美丽壮观的自然风景； — 有许多珍稀动植物（如大熊猫，金丝猴等）
价格（在当地的门票，交通费，食宿及其它费用）	7 200 元

选择 C

我更愿意花钱去一个更好的地方旅游和度假。

Appendix 3: a set of English version choice cards with visual aid

12

Place A		
Convenience at place just outside of attraction site		- difficult motor access; - simple hostels/hotels
Possibility of experiencing Nature		- at times, some basic tourism infrastructure (restaurants, stores, toilets) visible; - meet other people every hour
Ecotourism		- freely visit every place; - no resource saving; - no community involvement
Natural attractions		- ordinary landscapes; - no precious or nice species;
Cultural attractions		None
Cost (including entrance fee, local transportation, lodging and food, etc)		RMB4200

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Place B		
Convenience at place just outside of attraction site		- difficult motor access - simple hostels/hotels
Possibility of experiencing Nature		- sense of solitude and tranquility; - no tourism infrastructure; - no other visitors
Ecotourism		- scientific conservation program for core area and buffer zone (e.g. wild animal monitoring and protection); - green bus, bio energy use; - local community participation
Cultural attractions		- well preserved traditional architectures; - temples (alive); - original customs and culture
Natural Attractions		- magnificent awe-inspiring natural landscapes; - many precious species and very abundant/rich species-rich biodiversity (Panda, Golden Monkey)
Cost (including entrance fee, local transportation, lodging and food, etc)		RMB7200

Option C

I would rather like to spend my money on a better trip offered, and have my vacation enjoyment on another trip.