Impact of Tourists′ Perceived Value on Behavioral Intention for Mega Events: Analysis of Inbound and Domestic Tourists at Shanghai World Expo

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Abstract: Based on the survey data for 2120 inbound and domestic tourists at the Shanghai World Expo, a structural equation model was constructed for the relationship among tourists′ perceived value dimensions, behavioral intention and revisit intention. Additionally, the influence of tourists′ perceived value dimensions on the behavioral intention and revisit intention was explored. The results show that the utilitarian value and enjoyment value significantly affect the inbound and domestic tourists′ behavioral intention, while the convenience value and aesthetic value have no significant influence. The service value only significantly affects the domestic tourists′ behavioral intention, and the aesthetic value only significantly affects the inbound tourists′ behavioral intention. The utilitarian value, service value and enjoyment value significantly affect the inbound and domestic tourists′ revisit intention, while the convenience value only significantly affects the domestic tourists′ revisit intention. The utilitarian value is the primary factor affecting the inbound tourists′ behavioral intention and revisit intention, and the perceived price has no significant effect on either inbound or domestic tourists′ behavioral intention or revisit intention. The study explores the relationships between tourists′ perceived value, behavioral intention and revisit intention, analyzes the divergence and causation, theoretically enriches the research field of tourism geography and behavioral geography, and has great practical significance to the sustainable development of mega events in China, including the further development of the Shanghai World Expo.

Keywords: mega events; perceived value; behavioral intention; revisit intention; Shanghai World Expo

1 Introduction

In recent years, event tourism has become one of the fastest growing products in the world tourism market (Nicholson and Pearce, 2001). Compared with research on rapidly developing product of mega events, research on event tourism has been relatively slow, relevant theoretical and empirical studies require further consideration. Previous event tourism studies mainly focused on suppliers and management, and there is a lack of customer-oriented research, such as research on customer behavior and demands (Li and Petrick, 2006). Participants attending mega events seek an expected

value. Consumers′ perception and evaluation are the basis of participation and also the premise of event activities and the sustainable development of event tourism (Getz, 2008). Perceived value is the consumers′ overall assessment of the utility of a product based on perceptions of what is received and what is given, and researchers often combine psychological study methods and service marketing features to measure the customers′ subjective evaluation (Zeithaml, 1988). Sheth *et al.* (1991) proposed functional, social, and emotional dimensions of customers′ perceived value, while Sweeney and Soutar (2001) identified four interrelated dimensions of customers′ perceived value, namely quality,

emotional, price, and social dimensions. The classical view of perceived value is that it is a trade-off between cost and benefit or between price and quality. As research advances, the methods for measuring and modeling customers′ perceived value are constantly improving (Huber *et al.*, 2001). In the field of tourism research, measuring scales have been developed. For example, Petrick (2002) developed a scale for measuring the perceived value of a leisure service (SERV-PERVAL) according to the five dimensions of quality, emotional response, monetary price, behavioral price and reputation, and Sánchez *et al.* (2006) developed a scale for the perceived overall value of the purchase of a tourism product named GLOVAL, which has six dimensions of the functional value of the travel agency, functional value of the contact personnel of the travel agency, functional value of the tourism product, functional value price, emotional value and social value. Customers′ perceived value is relevant to customer satisfaction, loyalty, and trust, and it therefore affects customer behavior and service marketing (Gianfranco *et al.*, 2008). However, in research on tourists′ perceived value (TPV), there has been a lack of investigation of mega-event tourists and TPV of events such as world expos.

Tourists′ behavioral intention (TBI) has been viewed as an important research topic both in academia and the tourism industry. In modern marketing activities, TBI, especially tourists′ revisit intention (TRI) has played a crucial role in the determination of tourist destination. Positive TBI could be viewed as tourist loyalty and brings good word-of-mouth (WOM) referrals (SooCheong and Feng, 2007). In the industrial field, TBI is integrally or partially considered to have the nature of an economic phenomenon, and tourist destination development relies on tourists′ positive WOM referrals (Darnell and Johnson, 2001). Numerous studies have confirmed TBI from a tourist motive perspective (Wong and Yeh, 2009). In recent studies, TBI has usually been explored within the cognitive- affective-conative framework (Lam *et al.*, 2004; Chi and Qu, 2008). In the 1990s, TBI was measured by 1) positive WOM, 2) recommendations to others, 3) repurchase intention, and 4) high tolerance to a price premium (Cronin and Taylor, 1992; Zeithaml *et al.*, 1996). TBI study has focused increasingly on tourists′ previous behavioral experience, e.g., Joe *et al.* (2009) investigated behavioral intention in terms of three dimensions, namely destination revisit intention, WOM referrals, and alternative choices of

destinations, and they regarded value and satisfaction as significant factors affecting TRI and WOM. TBI study has also focused increasingly on tourists′ previous experiences. The previous literature has confirmed not only the effects of tourists′ satisfaction, the quality of the tourism experience and past experiences on TBI, but also the effects of tourists′ security perception of the destination and destination image perception on TRI and destination choice (Baker and Crompton, 2000; Bigne *et al.*, 2001; Darnell and Johnson, 2001; Kozak, 2001; Petrick *et al.*, 2001; Petrick and Backman, 2002; Chen and Tsai, 2007; SooCheong and Feng, 2007; Chen and Chen, 2010). In the field of TPV research, there has been little study on world expos, and there has been little research on the effect of TBI on TRI in research on mega-event tourism. However, it is vital to scientifically measure TPI for mega events and analyze its effect on the perceived evaluation and TBI of related events because tourists′ perceived evaluation of tourism events and participative behavior will directly affect their future behavior, such as participation intention and making recommendations.

The Shanghai World Expo held from May 1st to October 31st, 2010, was a huge success, attracting an unprecedented 7.3×10^7 visitors, providing huge economic, social and cultural benefits, and having a profound impact on the regional economy and tourism industry. TBI partially reflects the impact of mega-event tourism, especially the potential impact, and it is thus necessary to theoretically determine the relationship between TPV and TBI, such as how TBI is affected by TPV. On the other hand, the Shanghai World Expo comprised both temporary and permanent attractions with the latter including an expo garden. Every country has its own ideas about the further development of world expo tourism resources. Therefore, an in-depth study on the relationships between the inbound-tourist TPV and domestic-tourist TPV for the Shanghai World Expo will have great theoretical and practical significance to the sustainable development of mega events in China, including the further development of expo tourism.

2 Materials and Methods

2.1 Scale development
The TPV scale was designed on the basis of semi-structured interviews, literature reviews (Petrick, 2002; Du-

man and Mattila, 2005; Lu *et al*., 2006; Ma *et al*., 2006; Huang and Huang, 2007; Lee *et al*., 2007; Huang and Huang, 2008; Zhang and Jia, 2008; Bai *et al*., 2010; Di *et al*., 2010; Zhang and Lu, 2010; Dong *et al*., 2011; Wang *et al*., 2011) and tourist consumption characteristics for the Shanghai World Expo. The TBI scale was designed according to common measurement indicators (Baker and Crompton, 2000; Bigne *et al*., 2001). To improve the specificity, feasibility and scientificity of the scale, the authors attended the Shanghai World Expo in June 2010, conducted semi-structured interviews with visitors and carried out a preliminary test (receiving 48 complete questionnaires). According to personal experience and analysis of the preliminary test survey result, the questionnaire was modified. After optimization by tourism experts who had visited the expo, a modified questionnaire was formed. Another preliminary test was conducted for visitors who had visited the expo through travel agents, and a formal questionnaire was written after clarifying unclear expressions and modifying questions that tourists did not like to answer.

The questionnaires were provided in three different languages: Chinese, English and Japanese. The questionnaire was in four parts: 1) tourist demographic and behavior characteristics; 2) TPV dimensions, service value, public service value, convenience value, enjoyment value, perceived price, utilitarian value and social value; 3) TBI dimensions; and 4) TRI in relation to the permanent expo gardens. There were two forms of questions: 1) multiple-choice questions were used to acquire tourists′ demographic and behavior characteristics; 2) questions with a five-point Likert scale ranging from ′very unimportant′ to ′very important′ were used to measure TPV dimensions, TBI and TRI. For convenience, we denote TPV dimensions, TBI and TRI with the letters F, D and E, respectively.

2.2　Survey procedure

The survey period was 26 days from June to October 2010, including the preliminary test in mid-June and four formal surveys (July 20th to 25th, August 20th to 25th, September 22nd to 27th, and October 15th to 18th). To improve the scientificity and reference value of the survey, we chose five major survey sites, namely the Shanghai World Expo Garden, Shanghai Museum, Shanghai Urban Planning Exhibition Hall (rest area on the fifth floor), Whampoa First Restaurant on Fuxing Road

alongside the Bound (a permanent restaurant for tour groups) and the researchers′ hotels (Yitianxia Building and Green Tree in Chain). Considering the weather conditions and visitors′ sightseeing schedules, the survey conducted in the Shanghai World Expo Garden was carried out from 3:00 pm to 6:00 pm when visitors rested after viewing the gardens or were preparing to depart. All respondents had visited the expo. To improve the response rate and the quality of the questionnaire, souvenirs and expo postcards were sent to respondents as gifts. Taking the timeliness into consideration, supplementary surveys were conducted frequently through international travel agents (National Hundred Travel Agents).

2.3　Sample construction

A total of 2460 questionnaires were delivered (620 inbound-tourist questionnaires and 1840 domestic-tourist questionnaires) to generate a final sample of 2120 useful surveys (560 inbound-tourist questionnaires, 1560 domestic-tourist questionnaires), giving a response rate of 86.2%. The respondents′ demographic and behavior characteristics were listed in Table 1. There were almost an equal number of males and females in the two sample groups. Most domestic tourists were youths younger than 24 years (48.5%), and most inbound tourists were middle aged or elderly older than 45 years (42.4%). The income level of the inbound tourists was higher than that of the domestic tourists. Most domestic tourists had received university education (35.8%), while most inbound tourists had masters (39%) or bachelors (40.6%) qualifications. Most tourists were students, institution employees and enterprise employees. Most tourists stated that they would like to participate in tourism groups or travel with relatives, friends and families. The inbound tourists came from 46 countries, and most were Europeans and Americans. Meanwhile, the domestic tourists came from all over the mainland of China; specifically, 30.2% came from the Changjiang (Yangtze) River Delta, 12.3% from Anhui, 6.9% from Shandong, and 40% from other provinces.

2.4　Methods

The statistical analysis software SPSS 18.0 was used for exploratory factor analysis (EFA), such as in testing the reliability and validity of the sample questionnaires, descriptive analysis, comparison mean value analysis,

Table 1   Demographic and behavior characteristics of tourists at Shanghai World Expo

Item	Category	DT (%)	IT (%)
Gender	Male	52.5	52.6
	Female	47.5	47.4
Age (years)	Below 18	21.5	8.3
	18–24	27.0	16.3
	25–34	23.1	21.0
	35–44	19.7	12.0
	45–60	7.5	22.5
	60 and older	1.2	19.9
Occupation	Government	7.9	9.8
	Enterprise staff	20.6	19.3
	Teacher/doctor/institution employee	19.1	18.7
	student	33.7	23.3
	others	18.7	28.9
Education	High school or below	33.4	20.4
	College	25.9	–
	Bachelor	35.8	40.6
	Postgraduate and above	4.9	39.0
Travel pattern	Attend tourism group	40.3	45.2
	With relatives/friends	16.2	19.5
	Family trip	17.6	13.2
	Personal travel	17.7	15.6
	others	8.2	6.4
Monthly income	Below 2000	38.1	28.0
	2000–5000	49.2	33.6
	5000–10000	8.5	18.3
	Above 10000	4.2	19.1

Notes: DT, domestic tourists; IT, inbound tourists; The unit of IT monthly income is USD; The unit of DT monthly income is yuan (RMB)

and cluster analysis, and AMOS 17.0 was used for confirmatory factor analysis (CFA), such as in testing the data reliability and validity, constructing the measurement model and structure model, and testing the models.

Based on the overall sample (2120 questionnaires), EFA was implemented to construct the measurement model of TPV dimensions. For the inbound-tourist sample and domestic-tourist sample, the measurement models were examined and compared. The inbound-tourist sample and domestic sample were better than the overall sample, and were selected for further analysis. The structural equation model (SEM) of the relationship of TPV with TBI, TPV and TRI was constructed to analyze the sample data and a comparison was made between the two sample groups.

3   Measurement Model of Tourists′ Perceived Value Dimensions

EFA and CFA were carried out to construct a measurement model of TPV dimensions for the overall sample, the inbound-tourist sample and the domestic-tourist sample. First, the reliability and validity of the overall sample were tested. The result showed that the Cronbach′s α coefficient was 0.959, which suggested good reliability of the data, and the Kaiser-Meyer-Olkin (KMO) coefficient was 0.958 (> 0.7), demonstrating the appropriateness of the factor analysis. Bartlett′s test of sphericity gave the chi-square ($\chi^2 = 41475.549$) statistics and an associated p-value close to zero (< 0.05), indicating significant difference in the correlation coefficient matrix and confirming the appropriateness of factor analysis.

3.1   Exploratory factor analysis

EFA was employed to test the measurement indicators of TPV dimensions for the overall sample, the inbound-tourist sample and the domestic-tourist sample. In accordance with Straub′s study (Straub,1989), the recommended threshold factor loading was 0.5; items with a loading less than 0.5 or items with loading higher than 0.4 for more than one factor were eliminated, and 33 measurement indicators were extracted in the three samples. According to Kaiser varimax rotation, the measurement indicators of the overall sample and the domestic-tourist sample were converged into six effective factors with eigenvalues greater than 1.0. Principal component analysis was used to analyze the inbound-tourist sample, and six main factors were extracted. The former six factors in each sample explained over 60% of the variance, exceeding the minimum standard and indicating that the six factors extracted were acceptable to conduct EFA.

3.2   Confirmatory factor analysis

Based on the findings of EFA, AMOS 17.0 was implemented to construct the first-order CFA model. For the overall sample, the overall measurement model was constructed to conduct the goodness-of-fit test. Using the two sample data sets, two grouped measurement models were constructed to conduct grouped data analy-

sis. The result showed that all models converged effectively. The model constructed for the two individual sample groups performed better than the model constructed for all sample data. The basic goodness-of-fit indices of the latter model were favorable, and the absolute fit indices, the incremental fit indices, and the parsimonious fit indices corresponded with the fit criterion.

The appropriateness of the model was confirmed in the reliability and validity test. As shown in Table 2, Cronbach′s $α$ coefficient ranged from 0.715 to 0.895, the latent variables composite reliability ranged from 0.713 to 0.893 for the inbound-tourist sample, while for the domestic-tourist sample, Cronbach′s $α$ coefficient ranged from 0.760 to 0.932, and the composite reliability ranged from 0.779 to 0.931. Both models′ data reliability and composite reliability were good with values exceeding 0.7. On the basis of an existing literature review, the content was validated through interviews with tourists, repeated modification by experts and discussion with experts. The average variance extraction value (AVE) of the six dimensions in the domestic-tourist sample model exceeded 0.5, and the AVE of the four dimensions in the inbound-tourist sample also exceeded 0.5, demonstrating that the models have good inherent quality. The standardized path coefficients of measurement indicators corresponding with the first-order latent variables (confirmatory factor loadings) ranged from 0.50 to 0.95, thereby supporting the model′s convergent validity and discriminant validity. The EFA conclusion model was confirmed by CFA.

As shown in Table 3, of the six factors extracted for the two models, the measurement indicators F4 and F5 were completely the same, other measurement indicators were nearly the same, and the models′ measurement dimensions were named similarly for the convenience of comparison (Table 3).

To get a clear understanding of the effect of TPV di-

mensions on TBI, it was hypothesized that TPV dimensions significantly affected TBI.

H1: UV is positively related to the domestic TBI.
H2: UV is positively related to the inbound TBI.
H3: SV is positively related to the domestic TBI.
H4: SV is positively related to the inbound TBI.
H5: AV is positively related to the domestic TBI.
H6: AV is positively related to the inbound TBI.
H7: EV is positively related to the domestic TBI.
H8: EV is positively related to the inbound TBI.
H9: PP is positively related to the domestic TBI.
H10: PP is positively related to the inbound TBI.
H11: CV is positively related to the domestic TBI.
H12: CV is positively related to the inbound TBI.

The existing literature review showed that TRI was affected by various factors, and TPV undoubtedly played a key role in TRI and the revisit decision. Therefore, it was hypothesized that TPV dimensions significantly affected TRI.

Ha: UV is positively related to the inbound TRI.
Hb: UV is positively related to the domestic TRI.
Hc: SV is positively related to the inbound TRI.
Hd: SV is positively related to the domestic TRI.
He: AV is positively related to the inbound TRI.
Hf: AV is positively related to the domestic TRI.
Hg: EV is positively related to the inbound TRI.
Hi: EV is positively related to the domestic TRI.
Hj: PP is positively related to the inbound TRI.
Hk: PP is positively related to the domestic TRI.
Hm: CV is positively related to the inbound TRI.
Hn: CV is positively related to the domestic TRI.

4 Structural Equation Model Confirmation

4.1 Relationship between tourists′ perceived value and tourist′ behavioral intention
An SEM was constructed to further clarify and confirm

Table 2   Test of reliability and validity

Latent variable	Cronbach′s $α$		Composite reliability		AVE	
	IT	DT	IT	DT	IT	DT
F1	0.895	0.901	0.893	0.904	0.545	0.615
F2	0.851	0.906	0.847	0.906	0.447	0.521
F3	0.858	0.899	0.857	0.908	0.600	0.664
F4	0.839	0.932	0.844	0.834	0.501	0.502
F5	0.829	0.838	0.838	0.931	0.564	0.770
F6	0.715	0.760	0.713	0.779	0.334	0.547

Notes: F1–F6, tourists′ perceived value dimensions; IT, inbound tourists; DT, domestic tourists; AVE, average variance extraction value

Table 3　Measurement indicators in latent variables

Latent variable	Measurement indicator	
	Inbound-tourist sample	Domestic-tourist sample
F1 (UV)	X_1 (appreciate world culture)	X_1 (appreciate world culture)
	X_2 (appreciate world scientific and technological development)	X_2 (appreciate world scientific and technological development)
	X_3 (widen one′s knowledge)	X_3 (widen one′s knowledge)
	X_4 (enrich conversation topics)	X_4 (enrich conversation topics)
	X_5 (shape morality)	X_5 (shape the morality)
	X_6 (arouse admiration interest)	X_6 (arouse admiration interest)
	X_{20} (theme annotation and perception)	
F2 (SV)	X_7 (service efficiency in SWEG)	X_7 (service efficiency in SWEG)
	X_8 (employees′ attitude in SWEG)	X_8 (employees′ attitude in SWEG)
	X_9 (employees′ appearance in SWEG)	X_9 (employees′ appearance in SWEG)
	X_{10} (safety and security in SWEG)	X_{10} (safety and security in SWEG)
	X_{12} (environmental sanitation)	X_{11} (transportation service)
	X_{15} (overall organization work)	X_{12} (environmental sanitation)
	X_{33} (tourist flow organization)	X_{13} (traffic route)
		X_{14} (information availability)
		X_{15} (overall organization work)
F3 (AV)	X_{16} (visual impact)	X_{16} (visual impact)
	X_{17} (garden design aesthetics)	X_{17} (garden design aesthetics)
	X_{18} (exhibition activity design)	X_{18} (exhibition activity design)
	X_{19} (appreciation)	X_{19} (appreciation)
		X_{20} (theme annotation and perception)
F4 (EV)	X_{21} (cheerfulness)	X_{21} (cheerfulness)
	X_{22} (worry discard)	X_{22} (worry discard)
	X_{23} (relaxation)	X_{23} (relaxation)
	X_{24} (pleasure)	X_{24} (pleasure)
F5(PP)	X_{25} (expo entrance ticket price)	X_{25} (expo entrance ticket price)
	X_{26} (accommodation price)	X_{26} (accommodation price)
	X_{27} (traffic price)	X_{27} (traffic price)
	X_{28} (food price in SWEG)	X_{28} (food price in SWEG)
	X_{29} (commodity price in SWEG)	X_{29} (commodity price in SWEG)
F6 (CV)	X_{13} (traffic route)	X_{30} (accommodation and booking)
	X_{14} (information availability)	X_{31} (food in SWEG)
	X_{30} (accommodation and booking)	X_{32} (shopping in SWEG)
	X_{31} (food in SWEG)	
	X_{32} (shopping in SWEG)	

Notes: UV, utilitarian value; SV, service value; AV, aesthetic value; EV, enjoyment value; CV, convenience value; PP, perceived price; SWEG, Shanghai World Expo Garden

the relationship between TPV and TBI. Cronbach′s α coefficients of TBI measurement indicators were 0.878 and 0.850 (> 0.7), and the KMO coefficients were 0.717 and 0.722 (> 0.7), respectively for the domestic-tourist and inbound-tourist samples, both passing Bartlett′s test of sphericity. The reliability, validity and quality of both

the domestic-tourist sample (composite reliability = 0.879, AVE = 0.710) and inbound-tourist sample (composite reliability = 0.858, AVE = 0.675) were well confirmed.

For the two sample data sets, AMOS 17.0 was used to construct the SEM of the relationship between TPV and

TBI. The fitting indices, the estimates of path coeffi-
cients and the *p*-value test were examined for the two
models. Because the two sample sizes were large, the
chi-square test was abandoned (Wu, 2009). In accor-
dance with Bogozzi and Yi′s criterion (Rong, 2009), as
shown in Fig. 1, the measurement error variance reached
a significant level, and the factor loadings between la-
tent variables and the measurement indicators ranged
from 0.50 to 0.95, indicating the models fitted well. The
absolute fit indices (root mean square residual (RMR),
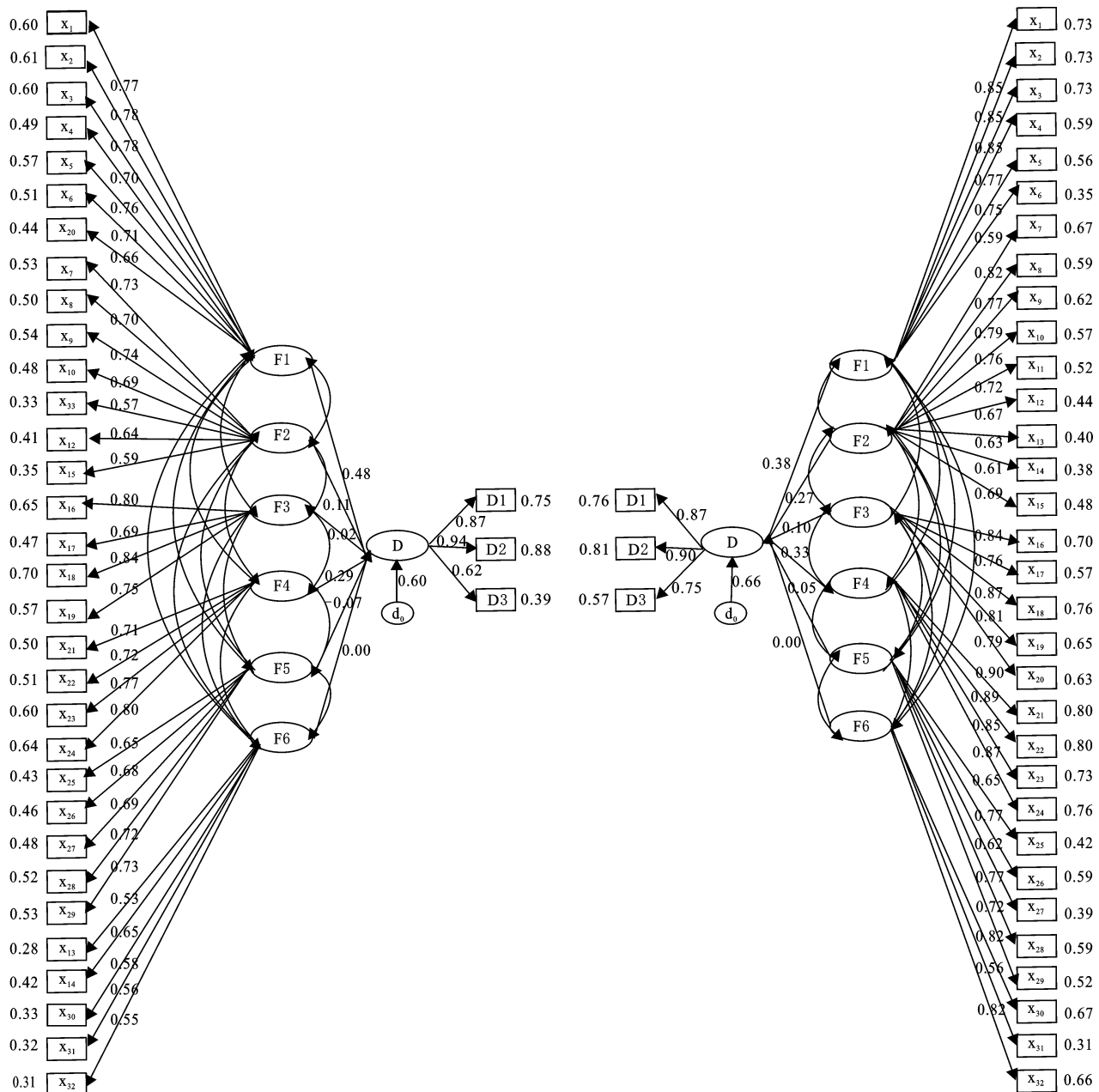
GFI, goodness-of-fit index; AGFI, adjusted goodness-of-fit index; RMR, root mean square residual; RMSEA, root mean square error of approximation; NFI,
normed fit index; RFI, relative fit index; IFI, incremental fit index; TLI, Tacker-Lewis index; CFI, comparative fit index, PGFI: parsimony goodness-of-fit
index; PNFI: parsimony-adjusted normed fit index; PCFI, parsimony comparative fit index
Left figure: inbound sample; GFI = 0.912; AGFI = 0.884; RMR = 0.042; RMSEA = 0.023; NFI = 0.912; RFI = 0.891; IFI = 0.981; TLI = 0.977; CFI = 0.981;
PGFI = 0.691; PNFI = 0.733; PCFI = 0.789. Right figure: domestic sample; GFI = 0.906; AGFI = 0.877; RMR = 0.048; RMSEA = 0.054; NFI = 0.927; RFI
= 0.916; IFI = 0.942; TLI = .932; CFI = 0.941; PGFI = 0.733; PNFI = 0.7799; PCFI =0.812
F1–F6: TPV dimensions; X_i: measurement indicator of TPV; D: latent variables of TBI; d_0: error variables of TBI; D1–D3: measurement indicators of TBI

Fig. 1　Structural equation model of tourist′s perceived value (TPV) and tourist′s behavioral intention (TBI)

root mean square error of approximation (RMSEA), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI)), the incremental fit indices (normed fit index (NFI), relative fit index (RFI), incremental fit index (IFI), Tacker-Lewis index (TLI), comparative fit index (CFI)) and the parsimonious fit indices (parsimony goodness-of-fit index (PGFI), parsimony-adjusted normed fit index (PNFI), parsimony comparative fit index (PCFI)) were tested, and suggested a good overall fit. In the internal structure fit test, the coefficients of item reliability for the observed variables all exceeded 0.3, with most reaching 0.5, except item X_{28} in the inbound-tourist model. The coefficients of composite reliability of the latent variables and Cronbach′s α reliability exceeded 0.7; all parameter estimates reached a significant level, indicating that the internal fit of the models was good. Consequently, both the domestic-tourist and inbound-tourist models fitted well and could be accepted.

As shown in Fig. 1, the standardized path coefficients (factor loadings) of measurement indicators of TPV dimensions ranged from 0.53 to 0.90, and the standardized path coefficients of TBI measurement indicators ranged from 0.62 to 0.94. The T-value test was significant (Table 4). In the domestic-tourist model, the standardized path coefficients of first-order latent variables (F1–F6) corresponding with TBI (D) were 0.379, 0.270, 0.099, 0.325, 0.051, and 0.001, respectively and their counterparts in the inbound-tourist model were 0.479, 0.114, 0.023, 0.293, –0.071, and 0.001, respectively. The critical ratio (C.R.) denotes the T-value of a T-test. C.R. reaches a significant level at a recommended threshold of 1.96. Table 4 shows that H1, H2, H3, H7 and H8 were confirmed with C.R. values of 7.344, 7.176, 8.027, 8.987, and 4.094, respectively, but H4, H5, H6, H9, H10, H11, H12 were rejected with C.R. values of 1.471, 1.900, 0.418, 1.256, –0.961, 0.660, and 0.021, respectively.

Table 4   Evaluating indicator and consequence of hypothesis model

	Domestic-tourist sample model						Inbound-tourist sample model					
	H1	H3	H5	H7	H9	H11	H2	H4	H6	H8	H10	H12
Variable relations	F1→D	F2→D	F3→D	F4→D	F5→D	F6→D	F1→D	F2→D	F3→D	F4→D	F5→D	F6→D
Path coefficient	0.379	0.270	0.099	0.325	0.051	0.001	0.479	0.114	0.023	0.293	–0.071	0.001
C.R.	7.334	8.027	1.900	8.987	1.256	0.660	7.176	1.471	0.418	4.094	–0.961	0.021
P-value	***	***	0.057	***	0.209	0.509	***	0.141	0.676	***	0.337	0.984
Result	pass	pass	reject	pass	reject	reject	pass	reject	reject	pass	reject	reject

Notes: F1–F6, TPV dimensions; D, latent variables of TBI; C.R., critical ratio; *** represents *P*-value < 0.001

## 4.2   Relationship between tourists′ perceived value and tourists′ revisit intention

The TRI was affected by various factors. The TPV played a crucial role in determining TRI and the revisit decision. In contrast to fully attractions, the Shanghai World Expo was one of a series of expos and was of short duration and included both temporary and permanent attractions. However, every country has its own ideas about the further development of world expo tourism resources. In the case of the Shanghai World Expo, besides the permanent expo garden, there were other attractions that attracted repeat visits from tourists. During the survey, tourists were interviewed in depth, and the results clearly show TRI. Therefore, the study constructed an SEM to further confirm the relationship between the TPV and TRI in relation to the permanent expo garden.

AMOS 17.0 was used to construct an SEM to confirm the relationship between the TPV and TRI in relation to the permanent expo garden for the inbound-tourist and domestic-tourist samples. TPV dimensions (latent variables) were viewed as exogenous variables and TRI in relation to the permanent expo garden as endogenous variables. Using the two sample data sets, a model fit test was carried out, and the path coefficients and *p*-value were calculated. The results showed that the estimate error variance reached a significant level, and the factor loadings between latent variables and measurement indicators ranged from 0.53 to 0.90, suggesting a goodness-of-fit. The absolute fit indices (RMR, RMSEA, GFI and AGFI) mainly met the fit requirement. The incremental fit indices (NFI, RFI, IFI, TLI and CFI) exceeded 0.90. The parsimonious fit indices (PGFI, PNFI and PCFI) exceeded 0.5. Both AIC and CAIC were

lower than the independent model value and the saturated model value, indicating that the overall fit indices were preferable. In terms of the internal structure fit test, the reliability coefficients of most items in the observed variables exceeded 0.5, the composite reliability and

Cronbach′s α reliability of the first-order latent variables exceeded 0.7, and all parameter estimates reached a significant level, indicating the internal fit indices were good. Therefore, the model fit indices were accepted.

As shown in Table 5, the standardized path coeffi-
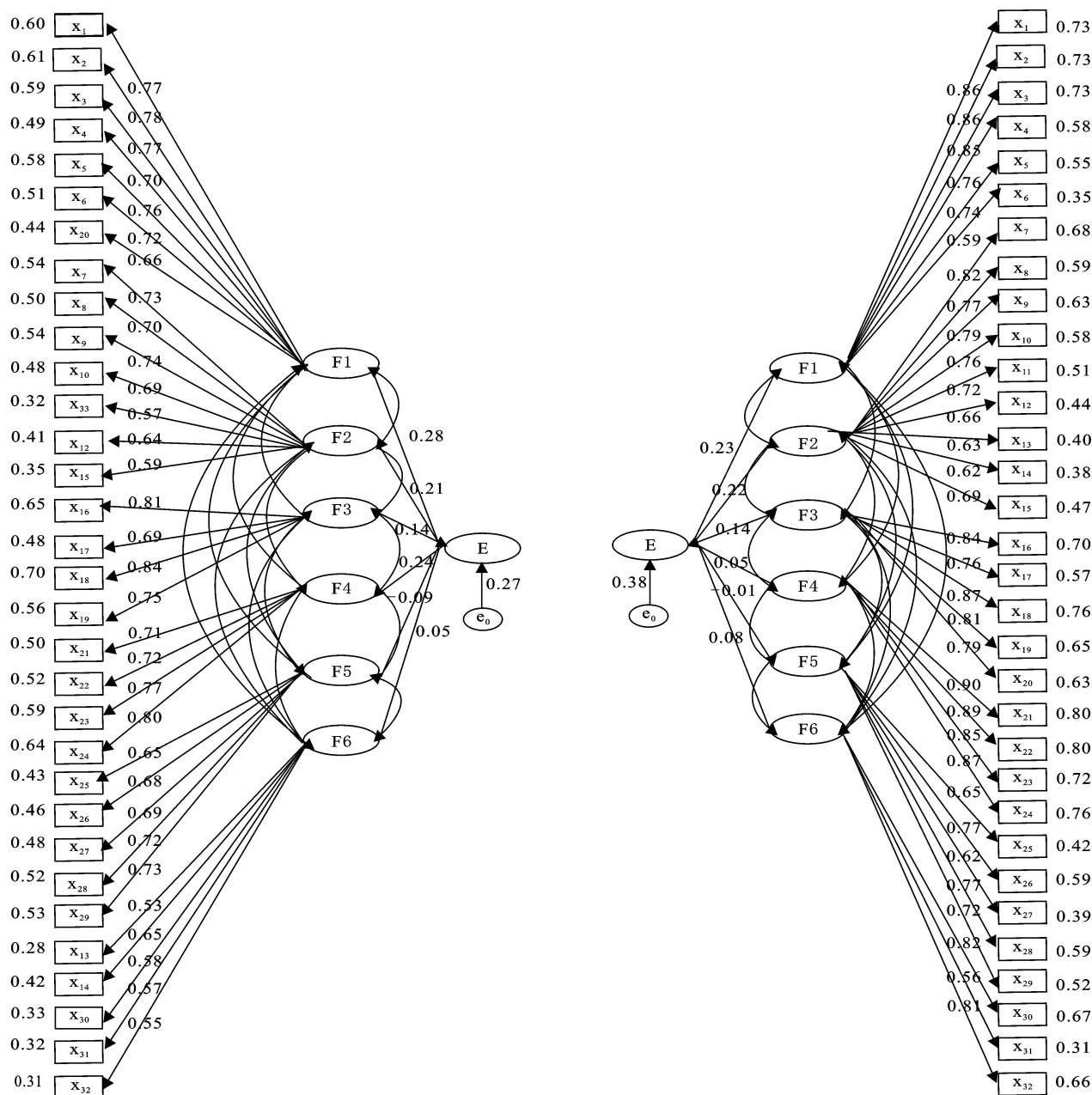
GFI, goodness-of-fit index; AGFI, adjusted goodness-of-fit index; RMR, root mean square residual; RMSEA, root mean square error of approximation; NFI, normed fit index; RFI, relative fit index; IFI, incremental fit index; TLI, Tacker-Lewis index; CFI, comparative fit index, PGFI: parsimony goodness-of-fit index; PNFI: parsimony-adjusted normed fit index; PCFI, parsimony comparative fit index

Left figure: inbound sample; RMR = 0.043; RMSEA = 0.026; GFI = 0.920; AGFI = 0.891; NFI = 0.916; RFI = 0.893; IFI = 0.94284; TLI = 0.980; CFI = 0.984; PGFI = 0.678; PNFI = 0.719; PCFI = 0.772. Right figure: domestic sample; RMR = 0.068; RMSEA = 0.067; GFI = 0.898; AGFI = 0.861; NFI = 0.912; RFI = 0.898; IFI = 0.923; TLI = 0.911; CFI = 0.923; PGFI = 0.714; PNFI = 0.790; PCFI = 0.800

F1–F6: TPV dimensions; X_i: measurement indicator of TPV; e_i: error measurement indicator; E: measurement indicator of TRI

Fig. 2   Structural equation model of tourist′s perceived value (TPV)and tourist′s behavioral intension (TPI)

Table 5   Evaluating indicator and consequence of hypothesis model

	Inbound-tourist sample model						Domestic-tourist sample model					
	Ha	Hc	He	Hg	Hj	Hm	Hb	Hd	Hf	Hi	Hk	Hn
Variable relations	F1→E	F2→E	F3→E	F4→E	F5→E	F6→E	F1→E	F2→E	F3→E	F4→E	F5→E	F6→E
Path coefficient	0.279	0.212	0.139	0.238	−0.087	0.054	0.234	0.221	0.054	0.136	−0.01	0.075
C.R.	3.734	2.287	2.082	2.815	−0.990	0.623	4.513	5.321	0.957	3.105	−0.254	2.018
P-value	***	0.022	0.038	0.005	0.322	0.533	***	***	0.338	0.002	0.800	0.044
Result	pass	pass	pass	pass	reject	reject	pass	pass	reject	pass	reject	pass

Note: F1–F6, TPV dimensions; E, latent variables of TRI to the permanent expo garden; C.R., critical ratio; *** represents *P*-value < 0.001

cients of the relationship between TPV dimensions (F1–F6) and TRI (E) in relation to the permanent expo garden were 0.279, 0.212, 0.139, 0.238, −0.087, and 0.054, respectively, for the inbound-tourist sample. In line with the aforementioned criterion, the T-value test with C.R. higher than 1.96 could be accepted at a significance level of 0.05. Table 5 suggests that Ha, Hc, He, and Hg could be confirmed with C.R. values of 3.734, 2.287, 2.082, and 2.815, respectively. However, for the domestic-tourist sample, the standardized path coefficients were 0.234, 0.221, 0.054, 0.136, −0.01, and 0.075, respectively, and Hb, Hd, Hi and Hn were confirmed with C.R. values of 4.513, 5.321, 3.105, and 2.018, respectively.

4.3   Analysis of results

The above results shows that TBI was significantly affected by TPV at the Shanghai World Expo. Specifically, UV and EV were common factors that positively influenced TBI for both the inbound-tourist and domestic-tourist samples. Path coefficient analysis indicated that the influence of UV was stronger than that of EV on TBI; the influence of UV on TBI was more significant for the inbound-tourist sample, while the influence of EV on TBI was more significant for the domestic-tourist sample, but PP and CV had no significant influence on TBI for either sample. SV only had a significant influence on domestic TBI. This reflected the differences in travel motivations and behavioral decision making in different market segments. The inbound tourists were mainly middle-aged and elderly who were well educated and had a high monthly income, and their main reason for visiting the Shanghai World Expo was tourism. By contrast, domestic tourists were mainly young students seeking knowledge, novelty and enjoyment.

TPV significantly influenced TRI in relation to the permanent expo garden. Specifically, UV, SV and EV

were common factors that positively influenced TRI in relation to the permanent expo garden for the two samples. Path coefficient analysis showed that the strongest influencing factor was UV, the second was EV, and SV was the slightest. The influence of UV and EV on TRI was more obvious for the inbound-tourist sample than for the domestic-tourist sample. AV had a significant influence on TRI only for the inbound-tourist sample, while CV had only a significant influence on TRI for the domestic-tourist sample. Compared with the domestic tourists, most inbound tourists were mature with rich tourism experience and would prefer a more comfortable and pleasant experience. Their intention to revisit the expo and interest in the tourism value were stronger than those of the domestic tourists. As a mature tourist destination, the host area of Shanghai is well known for its high industrial development and popularity with international tourists. Therefore, CV did not have a significant influence on TBI for the inbound-tourist sample.

The SEM analysis showed that UV had the strongest influence on TBI and TRI at the Shanghai World Expo, reaching a significance level of 0.001. Thus, UV was the primary factor affecting both TBI and TRI for the two samples. Path analysis indicated that the coefficients of the measurement indicators X_1 (appreciate world culture), X_2 (appreciate world scientific and technological development), X_3 (widen one′s knowledge) corresponding to UV were distinctively higher than others, demonstrating that mega-event tourists paid more attention to spiritual benefits (e.g., seeking knowledge, experience, and information). These desires are a major difference between mega-event tourists and other tourists, such as recreational tourists and cultural tourists. Additionally, EV was an important factor that affected TBI and TRI. The path coefficient analysis suggested that the effects of UV and EV on TBI were much stronger than the effects of UV and EV on TRI. PP did not have a signifi-

cant influence on TBI or TRI for the inbound-tourist sample, indicating that international tourists were insensitive to PP. As for the domestic tourists, with economic development and a rise in the national income level, tourists′ PP sensitivity had a downward trend, and PP was no longer the primary factor affecting people′s travel decisions. This was a major cause for the strong demand and continuously high tourist flow during the Shanghai World Expo.

5   Conclusions

TBI and TRI are of great importance in a behavioral geography study, and mega tourism events are an important research topic in tourist geography. Taking visitors from the Shanghai World Expo as an example, the present study constructed SEMs to confirm the relationships between TPV and TBI and between TPV and TRI; revealed the pathway, strength and law of the effect of TPV on TBI and TRI in mega events; compared differences between inbound-tourist and domestic-tourist samples; analyzed the reasons for the differences; theoretically enriched the research contents of behavioral geography and tourist geography; put forward practical countermeasures for destination development, such as destination product design, project development, industry system construction, and post-event resources development; and provided a theoretical reference for the sustainable development of international mega events in China, including the further development of the Shanghai World Expo.

The above-mentioned findings are conducive to the successful hosting of mega events in China, including the further development of world expo tourism resources. The world expo series has been considered the Olympic Games of the world economic, cultural and scientific fields; therefore, in terms of destination construction, it is necessary to deeply exploit and promote the cultural connotation of tourist attractions, fully reflect new achievements in world culture, science and technology, and select an appropriate way to interpret and transfer theme information of the attractions. Besides the permanent expo garden, post-expo development should reproduce a visual feast to display the expo culture through the use of materials and new technology. At the Shanghai World Expo, most inbound visitors were middle-aged and the elderly, while most domestic

tourists were young students. Therefore, mega events and the further development of item design and display methods should combine participation and interaction to meet the interests of all tourists. As for destination system construction, it is necessary to strengthen the construction of industrial elements and public services to ensure mega events are held in an orderly manner. Destination marketing should highlight the connotation and epochal features of tourist attractions. Item design, destination system construction and post-event product development are important factors that cannot be ignored in destination marketing.

For mega events, price does not have a significant effect on TBI or TRI in theory. The price elasticity of demand in both the inbound-tourist and domestic-tourist markets was low, indicating that market demand is insensitive to price. However, in tourist market development practice, price is still an important control of tourist flow in mega events. A reasonable elastic price strategy could be used to adjust tourist flow effectively and avoid problems such as waiting in line for a long time and an imbalance of supply and demand. An improvement in TPV, such as EV, CV and SV, could promote TBI and TRI, result in favorable WOM referrals and destination imagery, and promote the development of the destination tourism industry.

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