THE TRAVEL SUBSTITUTION TOURISM BEHAVIOR IN THE POST-PANDEMIC ERA: A REVISION OF THE THEORY OF PLANNED BEHAVIOR

TZUHUI ANGIE TSENG CHEN-LANTSUNG

Department of Environmental and Cultural Resources, National TsingHua University, Taiwan
E-mail: tzuhuitsengangie@gmail.com

Abstract - The coronavirus disease 2019 outbreak has severely impacted the global economy, particularly the tourism industry. Lockdowns and epidemic prevention measures imposed in many countries have restricted the range and methods of travel. However, since many people still need to travel, they may change their initial plans through substitution. This study examined the travel substitution behaviors of people during the pandemic based on the theory of planned behavior. By including an additional perceived risk variable, we expanded the theory of planned behavior model to analyze the association between the perceived risk level and changes in travel behaviors during the pandemic and the possible travel substitutes adopted by visitors for dining, accommodation, transportation, sightseeing, shopping, and entertainment. We used a mixed-method approach, conducting in-depth qualitative interviews to examine the interviewees' potential travel substitution behaviors during the pandemic and then developing and administering a pre-test questionnaire based on the interview results. Then, we used convenience sampling to administer 580 online questionnaires to whom aged ≥18 years. Our results are expected to provide a reference for tourism operators to suitably adjust their business models during epidemics.

I. INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic originated as a cluster of infections in Wuhan, Hubei Province, China, in December 2019.It then rapidly spread to other cities in China and worldwide. Its high variability and the frequent movements of people worldwide due to globalization have facilitated its far-reaching transmission. To effectively curb the spread of the pandemic, many counties imposed border restrictions, forcing the cancellation of many international flights.

The global economy has suffered tremendously due to the pandemic. Many industries became sluggish or stopped, with tourism being the worst affected (Škare et al., 2021). Based on the United Nations World Tourism Organization's (UNWTO) tourism data, the pandemic and worldwide travel restrictions caused international tourist arrivals between January and October 2020 to decrease by 72% compared to the same period in 2019, a decline of 900 million international tourists and a revenue loss of US$935 billion. This loss is ten times higher than during the global financial crisis in 2009 (UNWTO, 2020).

Substitution is settling on other options when the primary option becomes unavailable (Xuereb et al., 2020). In tourism, substitution can be defined as replacing specific products or services with equivalent products or services (van der Veen, 2015). For example, when travelers choose their destination, they may substitute domestic (international) travel with international (domestic) travel (Forsyth et al., 2014). Huybers (2003) proposed that geopolitical instability and significant events, such as the severe acute respiratory syndrome (SARS) outbreak in 2003, could promote substitution between domestic and international tourism.

Previous reviews have widely discussed travel-related behavioral intentions, such as tourism type, destination, willingness to pay, and accommodation choices (Chiang, 2014; Lam & Hsu, 2006; Park et al., 2017). However, there is a dearth of research on the behavioral model of travel substitution during the pandemic, especially local studies. Therefore, this study expanded the theory of planned behavior (TPB) by incorporating the concept of perceived risk. We designed a questionnaire to survey the travel-related behavioral intentions of Taiwanese citizens during the pandemic and changes in theirdining, accommodation, transportation, sightseeing, shopping, and entertainment behaviors. Our results are a valuable reference for the tourism industry to quickly reshape and adjust its business models during crises.

To summarize, this study examinesfour main research questions:

1. To understand visitors' perceived risk during the COVID-19 pandemic.
2. To examine the relationships between perceived risk and the various latent variables in our planned behavior-based theoretical model and their effects on visitors' travel-related behavioral intentions.
3. To analyze visitors' travel substitution behaviors relating to dining, accommodation, transportation, sightseeing, shopping, and entertainment during the pandemic.
4. To provide a future reference for tourism-related industries based on the analyzed study results.

1-1 Perceived risk

A person's perception of risk is a key determinant of whether or not they would adopt a specific behavior. Therefore, many studies have focused on perceived instead of actual risks (Dillard et al., 2012).According

to Maslow's (1943) hierarchy of needs, humans have an innate need to pursue safety. Therefore, safety and crisis are considered when a person makes their travel decision in the context of uncertain risks (Beirman, 2002). Perceived travel risk can be conceptualized as a consumer whose traveling decisions may be affected when they feel that the perceived risk of a specific travel behavior exceeds their acceptance level (Chew &Jahari, 2014). Few studies have explored how the COVID-19 pandemic has changed howpeopletravel locally. Based on the studies of Bae and Chang (2020) and Dryhurst et al. (2020) on perceived risksduring the COVID-19 pandemic, this study developed a global perceived risk scale that encompasses the affective and cognitive dimensions and is suitable for Taiwanese travelers.

1-2 Theory of planned behavior

The TPB serves as the basis for the theory of reasoned action (TRA) proposed by Ajzen and Fishbein(1975). When a person holds a positive and negative self-appraisals of certain behaviors.Aindividual's behavioral intentions strengthen when they show a more positive attitude toward a specific behavior. In contrast, their behavioral intentions weaken when they show a more negative attitude toward a specific behavior (Ajzen&Fishbein, 1980). When society is more inclined toward supporting a specific behavior, people become more motivated to compromise, and their subjective norms also become stronger. Ultimately, a person develops the behavioral intentions to execute the said behavior (Hsing, 2002). When the person intends to adopt a specific behavior,which can be measured based on the effort they are willing to invest to achieve that behavior (Ajzen&Fishbein, 1980). Ajzen (1991) suggested that behavioral intentions correlate strongly with behavior; the stronger the behavioral intentions, the higher the likelihood of performing the behavior. Therefore, behavioral intentions are the best approach for predicting the feasibility of a behavior.Regarding tourism, Lam and Hsu (2006) added previous experiences as a new variable to the TPB to predict tourists' behavioral intentions in choosing Hong Kong as a tourist destination. Their results showed that attitudes, perceived behavioral control, and previous experiences significantly influenced the behavioral intention of choosing a tourism destination. Park et al. (2017) added destination image and travel constraints to the original TPB to accurately predict Chinese college students' behavioral intentions to visit Japan. Their results showed that attitudes had the greatest influence on students' behavioral intentions, while travel constraints negatively influenced their behavioral intentions.The COVID-19 pandemic has caused widespread and significant impacts globally, with the tourism industry experiencingsevere setbacks. It has also created a demand for predictingtourists' future travel-related behavioral intentions. However, there is a dearth of research on changes in tourists' behavioral intentions during the pandemic.

1-3 Travel substitution behavior

In tourism, substitution is defined as substituting specific products or services with equivalent products or services (van der Veen, 2015). Substitution may arise for two reasons: (1)visitors are unreceptive to the destination's environmental changes,and (2)the environment of another destination offers substitutive conditions (Shelby et al., 1988). Manning (1999) highlighted that visitors might adopt temporal or spatial substitution strategies when they adapt to negative recreational experiences.Human interactions are unavoidable in tourism; therefore, compared with other industries, tourism is more susceptible to the impacts of COVID-19 (Feyisa, 2020). While the severity of the pandemic has limited the range and methods of travel, some people still need to travel and may choose alternative modes that they perceive to pose a smaller infection risk.Kourgiantakis et al. (2020) investigated the travel intentions of 1281 Crete residents during the pandemic,finding that some residents still intended to travel during or after the summer but may adjust their original travel plans. Most interviewees chose to substitute overseas travel with domestic travel in Greece or Crete. Regarding accommodation, some participants were more inclined toward living in private holiday residences (e.g., cottages and homes of friends or relatives), four- or five-star luxury hotels, or Airbnb apartments, suggesting that visitors had safety and hygiene considerations. Sarkady et al. (2021) found that during the pandemic, visitors could substitute physical travel with virtual reality-simulated travel experiences.

Taiwanese citizens' travel behavior decisions undoubtedly center on the six dimensions of dining, accommodation, transportation, sightseeing, shopping, and entertainment (Chien, 2019). This study defines the potential substitutive travel behaviors based on Chang's (2017) and Kuo's (2012) definitions of these six dimensions (Table 1).

Substitution behavior	Definition and classification	References
Dining	Classification of dining types and methods, such as self-preparing meals, taking out, online food ordering, and dining in (e.g., restaurants, hawker stalls, and fast food restaurants).	Kao & Lin (2004)

Accommodation	Classification of accommodation types, such as high-class luxury hotels, homes of friends and relatives, and campsites.	Tourism Bureau (2003) and Wu (2007)
Transportation	Refers to transportation modes, facilities, and services and the classification of transportation modes at the destination, including driving or taking a bus, taxi, or high-speed rail.	Lin et al. (2019)
Sightseeing	Classification of sightseeing locations (e.g., overseas destinations and local and offshore destinations in Taiwan) and types (e.g., natural landscapes, historical sites, and religious tourism destinations).	Lin et al. (2019)
Shopping	Classification of shopping types (e.g., souvenirs, handicrafts, and local products) and payment methods (e.g., credit card, cash, and mobile payment).	Yang (2005)
Entertainment	Classification of entertainment activity types, such as viewing sceneries or participating in art events or local celebrations.	Lin et al. (2019)

Table 1. Travel substitution behaviors in times of crisis.

II. METHODS

2-1-1 Hypothesis

This study developed the following method and procedureto examine associations between visitors' perceived risks and travel attitudes, subjective norms, perceived behavioral control, and travel-related behavioral intentions during the pandemic and how substitutive travel choices affected their travel-related behavioral intentions.

2-1-2 Participants and procedure

This study usedconvenience sampling to recruit financially capable participants aged ≥18 years with good decision-making skills who had gone on ≥3 domestic or international trips within the last five years. They completed the questionnaire,which was provided as an online Google form. The qualitative study comprised two stages:Huang (2000) developed a formula for determining sample size. Assuming the population is approximately infinite, the minimum sample size should be 384 at a 95% confidence level and a sampling margin of error of ±5 percentage points. The formal questionnaire was administered between November 11 and December 13, 2021. From the 669 questionnaires administered, 580 valid responses were received, giving an effective response rate of 86.82%.

2-1-3 Study instrument

This study's instrument was a self-reported online questionnaire based on Ajzen's (1991) TPB. It was designed based on Bae and Chang's (2020) study, which focused on the influence of South Koreans' perceived risk of contactless travel on their travel-related behavioral intentions. We also referred to Dryhurst et al.'s (2020) study on worldwide perceived risk during the COVID-19 pandemic; Prati and Pietrantoni's (2016) studyonhow knowledge, perceived risk, and xenophobic attitudes influenced Italians during the Ebola outbreak; Liu et al.'s (2021) study that used the TPB to investigate Chinese students' intentions to visit green urban spaces during lockdowns; Liu et al.'s (2021) study that used the TPB to investigate the factors influencing Chinese citizens' willingness to travel overseas post-pandemic; Seong and Hong's (2021) study that used the TPB to assess whether risk awareness influenced visitors' decisions to visit national parks during the pandemic; and Yang's (2012) study that used the TPB to explore associations between factors influencing elementary schoolteachers' decisions to engage in ecotourism, willingness to travel, and environmental behaviors. To develop our questionnaire, we revised the items in each factor related to perceived risk and the TPB in these studies. Our questionnaire comprised four main sections: participants' basic data; perceived risk; attitudes, subjective norms, perceived behavioral control, and travel-related behavioral intentions; and travel substitution behavior. The questionnaire contained 126 items that were measured on a five-point Likert scale. The operational definitions of all variables are provided in Table 2.

Variable	Operational definition	Measurement	Item	References
Perceived risk (R)	The person's perceived risk level toward the COVID-19 pandemic	Five-point Likert scale (1 = strongly disagree; 5 = strongly agree)	R1: I am worried about the progress of the COVID-19 pandemic.	Bae& Chang (2020); Dryhurst et al. (2020); Prati&Pietrantoni (2016)
			R2: I am worried about getting infected with COVID-19.	
			R3: I am worried that friends and family living in Taiwan will get infected with COVID-19.	
			R4: In general, I believe that I am very likely to get infected with COVID-19.	

			R5: Compared to others, I believe that I am more likely to get infected with COVID-19.	
			R6: I believe that I am very likely to die of COVID-19.	
Attitudes (A)	The person's positive or negative appraisal of traveling during the COVID-19 pandemic		A1: To me, traveling during the pandemic is enjoyable.	Bae& Chang (2020); Liu, J. et al. (2021); Liu, Y. et al. (2021); Seong& Hong (2021);Yang (2012)
			A2:To me, traveling during the pandemic allows me to relax and de-stress.	
			A3: To me, traveling during the pandemic gives me more opportunities to connect with the world outside and socialize.	
			A4: To me, traveling during the pandemic benefits me.	
Subjective norms (S)	The person's perception of social stress when traveling during the COVID-19 pandemic		S1: My family's opinions influence my travel choices during the pandemic.	Bae& Chang (2020); Seong& Hong (2021); Liu, Y. et al. (2021); Yang (2012)
			S2: The opinions of my friends, classmates, and colleagues influence my travel choices during the pandemic.	
			S3: Media information influences my travel choices during the pandemic.	
			S4: Government policies and measures influence my travel choices during the pandemic.	
Perceived behavioral control (P)	The person's perception of difficulty when traveling during the COVID-19 pandemic		P1: I am confident I can travel during the pandemic as long as I am willing.	Bae& Chang (2020); Liu, J. et al. (2021); Liu, Y. et al. (2021); Seong& Hong (2021); Yang (2012)
			P2: Nothing can stop me from traveling during the pandemic as long as I am willing.	
			P3: I can travel during the pandemic, provided I have sufficient resources (funds), opportunities, and time.	
			P4: I would still travel during the pandemic even if some attractions remain closed or require advanced booking.	
Travel-related behavioral intentions (TB)	The person's self-measured propensity to travel in the future during the COVID-19 pandemic		TB1: I want to travel within the next year.	Liu, Y. et al. (2021); Seong& Hong (2021); Yang (2012)
			TB2: I plan to travel within the next year.	
			TB3: I will try my best to travel within the next year.	
			TB4: I will invest my time and money in traveling within the next year.	
Travel substitution behavior (TS)	The person's self-measured willingness to travel in the future during the COVID-19 pandemic		TS1: In my travels within the next year,I plan to visit open instead of closed spaces.	Liu, Y. et al. (2021); Seong& Hong (2021)
			TS2: In my travels within the next year,I plan to visit less crowded instead of crowded places.	
			TS3: In my travels within the next year,I plan to visit places where disinfection work is carried out instead of places that lack such operations.	
			TS4: In my travels within the next year,I plan to adopt modes of travel that pose a smaller infection risk instead of my previous pre-pandemic modes.	

Table 2. Operational definitions of the variables

III. RESULTS

3-2 Quantitative data analysis

We performed CFA using Amos statistical software to measure each dimension's goodnessoffit and ensure the validity and reliability of the results. First, based on Fornell and Larcker's (1981) criteria for evaluating convergent validity, all the estimated standardized factor loadings (λ) must exceed 0.5, and the t-statistic must be statistically significant when using multiple indices to measure the structure of a particular model.Next, reliability analysis was used to check the consistency and stability of each dimension's measurement results.

Nunnally (1978) suggested that good reliability is indicated by a Cronbach's αof >0.7. However, Cronbach's α is often underestimated in SEM analysis.Therefore, studies prefer to use composite reliability (CR) and average variance extracted (AVE) to examine the internal consistency of a dimension (Yeh, 2013).Fornell and Larcker (1981) suggested that reliability is acceptable when the CR is between 0.6 and 0.7, while it is excellent with a CRof >0.7. An AVE of >0.5 indicates that the factors can significantly explain all measurement variables.

In this study, the λ of all variables exceeded 0.5, indicating somewhat strong associations between the indices and specific latent variables.In addition, each dimension's Cronbach's α and CR exceeded 0.7, indicating that the latent variable could explain a large proportion of the total variance of each observed index, and the internal consistency was good.Moreover, each dimension's AVE was >0.5. Therefore, this study's goodness of fit tests had a certain level of reliability and validity.

Discriminant validity mainly examines the discrimination level between the observed variables in different dimensions. It reflects the extent to which different dimensions differentiate from other latent variables and checks whether the square root of each dimension's AVE exceeds the correlation coefficient between two dimensions (Chin, 1998; Hair et al., 1998). The discriminant validity analysis results are shown in Table 3, withthe square root of each construct's AVE shown on the diagonal and the correlation coefficients between dimensions shown below the diagonal.Since the square root of each construct's AVE exceeded the correlation coefficients between any two dimensions,this study had sufficient discriminant validity.

Factor	(1)	(2)	(3)	(4)	(5)	(6)
(1) Travel-related behavioral intentions	0.908					
(2) Attitudes	0.450	0.876				
(3) Perceived risk	−0.099	−0.107	0.707			
(4) Subjective norms	0.183	0.044	0.245	0.711		
(5) Perceived behavioral control	0.548	0.757	−0.087	0.047	0.760	
(6)Travel substitution behavior	0.066	−0.209	0.183	0.182	−0.172	0.738

Table 3.Discriminant validity.

3-2-2 Research model validation

We used AMOS statistical software to perform SEM on the interrelations between the observed variables and analyze and validate the hypotheses. The reference standards and test results of our model's goodness of fit(Chi-square/df =4.17; GFI=0.880; AGFI= 0.852; RMSEA=0.074).

To validate this study's nine proposed hypotheses, we developed a structural model pathway diagram (Figure 2). The figure shows that perceived risk significantly and negatively influenced attitudes, perceived behavioral control, and travel-related behavioral intentions. In contrast, perceived risk significantly and positively influenced subjective norms and travel substitution behaviors. Attitudes, subjective norms, perceived behavioral control, and travel substitution behaviors significantly and negatively influenced travel-related behavioral intentions. Therefore, all hypotheses are supported, and the first eight were consistent with the results of previous studies. Interestingly, the ninth hypothesis has yet to be proposed in local and foreign studies. Therefore, this study demonstrated that visitors have more intentions to travel when they have substitutes in the post-pandemic era.

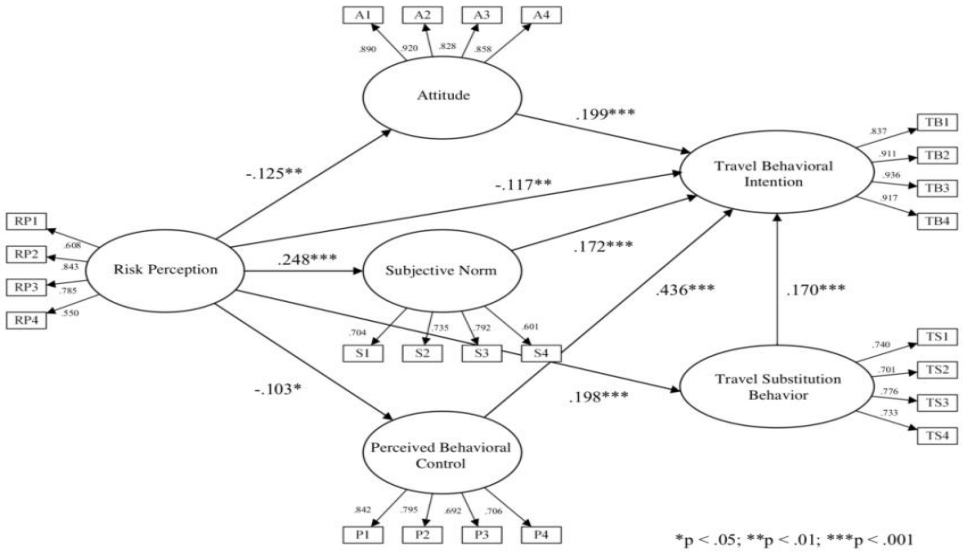


Figure 2The structural model.

IV. DISCUSSION AND RECOMMENDATIONS

4-1 Theory contribution

This study successfully developed an extended TPB model to examine the travel intentions of people during the pandemic. The t-tests showed that the perceived behavioral control was significantly lower for women than men. This finding differs from Sparks and Pan (2009), who found that women's subjective norms differed significantly. Nevertheless, both results imply that under the influence of traditional Asian culture, women have lower autonomous behavioral control than men.People's perceptions of COVID-19 risk directly and negatively impact their travel-related behavioral intentions. Similar results were reported by Zhu and Deng (2020) and Wang et al. (2020). Next, travel substitution behaviors positively influence travel-related behavioral intentions. Therefore, we propose that even under perceived risk when traveling during the pandemic, Taiwanese citizens are more willing to travel if substitutes are available.

The analysis showed that Taiwanese citizens were more inclined to travel to open, less-crowded, and well-sanitized settings in their post-pandemic travels. However, the qualitative analysis showed that personal habits significantly influenced the interviewees. According to international studies, even when behaviors are adopted in unstable environments, the frequency of past behaviors also indirectly influences behaviors through intentions. Therefore, people will likely develop good intentions based on past behaviors (Lam & Hsu, 2006). Regarding mobile payments, our quantitative analysis showed that Taiwanese citizens had a higher preference for using mobile payments after the pandemic.

4-2Practical recommendations

Visitors should pre-book their visits to attractions, and operators should streamline the booking procedures and implement control measures to ensure that all visitors can enter the premises. This approach enhances the visitors' perceived behavioral control such that they view traveling during the pandemic as effortless.To effectively reduce visitors' perception of COVID-19 risk, relevant government departments and tourism operators should establish prevention and control protocols as we return to normalcy in the post-pandemic era. Tourism operators should use social media to promote the safety and quality of their attractions.New forms of tourism can be developed by fusing travel substitutes with the "untact" concept to minimize visitors' perceived risk. "Untact" is a term that describes minimal contact during consumption (Bae & Chang, 2020). For example, hotel operators can arrange for family guests to dine in separate dining rooms or provide self-service breakfast.Similarly, tourism-related industries can fully leverage digital technology to minimize necessary contact.

REFERENCES

[1] Ajzen, I., & Fishbein, A. M. (1975). A bayesian analysis of attribution processes. Psychological Bulletin, 82(2), 261-277.

[2] Ajzen, I. (1991). The theory of planned behavior.Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

[3] Ajzen, I., Fishbein, M. (1980).Understanding attitudes and predicting social behavior. Englewood, NJ: Prentice-Hall.

[4] Bae, S. Y., & Chang, P. J. (2020).The effect of coronavirus disease-19 (COVID-19) risk perception on behavioural intention towards 'untact' tourism in South Korea during the first wave of the pandemic (March 2020).Current Issues in Tourism.https://doi.org/10.1080/13683500.2020.1798895

[5] Beirman, D. (2002). Marketing of tourism destinations during a prolonged crisis: Israel and the Middle East. Journal of

Vacation Marketing, 8(2), 167–176. https://doi.org/10.1177/135676670200800206

[6] Chew, E. Y. T., &Jahari, S. A. (2014). Destination image as a mediator between perceived risks and revisit intention: A case of post-disaster Japan. Tourism Management, 40, 382–393. https://doi.org/10.1016/j.tourman.2013.07.008

[7] Chiang, C. K. (2014).Application of the Theory of Planned Behavior to Travelers' Behavioral Intentions for Hostel.Master's thesis, National Taitung University In-service Master Program of Leisure Services Management, Taitung County.

[8] Chin, W. W. (1998). Commentary: Issues and Opinion on Structural Equation Modeling. Management Information Systems Quarterly, 22(1), 7-16.

[9] Dillard, A. J., Ferrer, R. A., Ubel, P. A., &Fagerlin, A. (2012).Risk perception measures' associations with behavior intentions, affect, and cognition following colon cancer screening messages.Health Psychology, 31(1), 106.https://doi.org/10.1037/a0024787

[10] Doll, W. J., Xia, W., &Torkzadeh, G. (1994). A Confirmatory Factor Analysis of the End-User Computing Satisfaction Instrument. MIS Quarterly, 12(2), 259-274.

[11] Dryhurst, S., Schneider, C., Kerr, J., Freeman, A., Recchia, G., van der Bles, A., Spiegelhalter, D., & et al. (2020).Risk perceptions of COVID-19 around the world.Journal of Risk Research, 23(7-8), 994-1006. https://doi.org/10.1080/13669877.2020.1758193

[12] Feyisa, H. L. (2020). The world economy at COVID-19 quarantine: contemporary review. International Journal of Economics, Finance and Management Sciences, 8(2), 63–74. https://dx.doi.org/10.11648/j.ijefm.20200802.11

[13] Fornell, C., &Larcker, D. F. (1981).Evaluating structural equation models with unobservable variables and measurement error.Journal of Marketing Research, 18(1), 39-50. https://doi.org/10.2307/3151312

[14] Forsyth, P., Dwyer L., Spurr R. & Pham T. (2014). The Impacts of Australia's Departure Tax: Tourism versus the Economy? Tourism Management, 40, 126-136. https://doi.org/10.1016/j.tourman.2013.05.011

[15] Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998).Multivariate data analysis (5th ed.). New York: Macmillan.

[16] Hsing, I. L. (2002).Application of the theory of planned behavior to leisure choice---Predicting and explaining the leisure intention and behavior of National Dong Hwa University students. Master's thesis, National Dong Hwa UniversityDepartment of Tourism, Recreation, and Leisure Studies, HualienCounty.

[17] Huang, C. Y. (2000). Multivariate Analysis. China Institute for Economic and Enterprise Research, Taipei City.

[18] Huang, F. M. (2007). Structural Equation Modeling: Theory and Application (5thed.). Taipei: Wunan.

[19] Huybers, T. (2003). Domestic tourism destination choices: A choice modeling analysis. International Journal of Tourism Research, 5, 445-459. https://doi.org/10.1002/jtr.450

[20] Kao, C. Y., &Lin, Y. H. (2004).Food and Beverage Management: Theory and Practice. Yang Chih Books.

[21] Kourgiantakis, M., Apostolakis, A., &Dimou, I. (2020). COVID-19 and holiday intentions: The case of Crete, Greece. Anatolia.

[22] Kuo, Y. C. (2012). A Study of Exploring Taipei Image from Travel Related Blogs in Taiwan and China. Master's thesis,Dayeh University Department of Information Management, Changhua County.

[23] Lam, T., Hsu, C.H.C. (2006). Predicting behavioral intention of choosing a travel destination.Tourism Management, 27(4), 589-599. https://doi.org/10.1016/j.tourman.2005.02.003

[24] Lin, L. C., Huang, K. N., Huang, M. H., Tseng, L., Hsu, M. Z., & Chen, Y. C. (2019). Travel and Culture.Wunan Books.

[25] Liu, J., Peng, Z., Cai, X., Peng, Y., Li, J., Feng, T. (2021). Students' Intention of Visiting Urban Green Spaces after the COVID-19 Lockdown in China. International Journal of Environmental Research and Public Health, 18(16), 8601.https://doi.org/10.3390/ijerph18168601

[26] Liu, Y., Shi, H., Li, Y., Amin, A. (2021). Factors influencing Chinese residents' post-pandemic outbound travel intentions: an extended theory of planned behavior model based on the perception of COVID-19. Tourism Review.ahead-of-print. http://dx.doi.org/10.1108/TR-09-2020-0458

[27] Manning, R. (1999). Studies in outdoor recreation (2nd Edition). Corvallis: Oregon State University Press.

[28] Maslow, A. H. (1943). A theory of human motivation.Psychological Review, 50(4), 370–396. https://doi.org/10.1037/h0054346 Nunnally, J. C. (1978). Psychometric Theory 2nd ed.

[29] Park, S. H., Hsieh, C. M., & Lee, C. K. (2017). Examining Chinese college students' intention to travel to Japan using the extended theory of planned behavior: Testing destination image and the mediating role of travel constraints. Journal of Travel & Tourism Marketing, 34(1), 113-131. https://doi.org/10.1080/10548408.2016.1141154

[30] Prati, G., &Pietrantoni, L. (2016). Knowledge, Risk Perceptions, and Xenophobic Attitudes: Evidence from Italy during the Ebola Outbreak. Risk Analysis, 36(10), 2000-2010.https://doi.org/10.1111/risa.12537

[31] Sarkady D., Neuburger L., Egger R. (2021) Virtual reality as a travel substitution tool during COVID-19. In Wörndl W., Koo C., Stienmetz J.L. (eds), Information and Communication Technologies in Tourism 2021. Springer, Cham.https://doi.org/10.1007/978-3-030-65785-7_44

[32] Seong, B. H., & Hong, C. Y. (2021). Does Risk Awareness of COVID-19 Affect Visits to National Parks? Analyzing the Tourist Decision-Making Process Using the Theory of Planned Behavior.International journal of environmental research and public health, 18(10), 5081.https://doi.org/10.3390/ijerph18105081

[33] Shelby, B., Bregenzer, N., & Johnson, R. (1988). Displacement and product shift: Empirical evidence from Oregon Rivers. Journal of Leisure Research, 20, 274-288.

[34] Škare, M., Soriano, D. R., &Porada-Rochoń, M. (2021).Impact of COVID-19 on the travel and tourism industry.Technological Forecasting and Social Change, 163, 120469.https://doi.org/10.1016/j.techfore.2020.120469

[35] Sparks, B.A., & Pan, G.W. (2009). Chinese Outbound tourists: Understanding their attitudes, constraints and use of information sources. Tourism Management, 30, 483-494. https://doi.org/10.1016/J.TOURMAN.2008.10.014

[36] UNWTO, W. (2020).I World Tourism Barometer, 18(1), 1-48. Madrid, Spain: World Tourism Organization. https://doi.org/10.18111/wtobarometereng

[37] van der Veen R. (2015) Substitution, tourism. In: Jafari J., Xiao H. (eds) Encyclopedia of Tourism. Springer, Cham.https://doi.org/10.1007/978-3-319-01669-6_341-1

[38] Wang, F., Xue, T., Wang, T., Wu, B. (2020). The Mechanism of Tourism Risk Perception in Severe Epidemic—The Antecedent Effect of Place Image Depicted in Anti-Epidemic Music Videos and the Moderating Effect of Visiting History. Sustainability, 12(13), 5454.https://doi.org/10.3390/su12135454

[39] Wu, Y. M. (2007). Exploring the Current Status and Future Prospects on Motel in Taiwan; Perspectives from Operators and Consumers.Master's thesis,Aletheia University Graduate School of Management Sciences, New Taipei City.Retrieved from: https://hdl.handle.net/11296/x4r2cm

[40] Xuereb, S., Kim, H. S., Clark, L., & Wohl, M. J. A. (2020). Substitution behaviors among casino gamblers during COVID-19 precipitated casino closures. https://doi.org/10.31234/osf.io/fvnmb

[41] Yang, C. C. (2012).Applying the Theory of Planned Behavior to Explore the Effects of Decision-making Influential Factors and Tourism Desire on Environmental Behaviors–A Case of Elementary School Teachers in Kaohsiung.Master's thesis,National Kaohsiung University of Science and Technology Department of Tourism Management, Kaohsiung City.Retrieved fromhttps://hdl.handle.net/11296/3dzk4j

[42] Yang, K. H. (2005).Study of Vacation Lifestyle and Purchase Behavior of Travel Products by Taiwan's Young-Adult Backpackers engaging in Outbound Travel.Master's thesis,

Shih Hsin University Department of Tourism, Taipei City.Retrieved fromhttps://hdl.handle.net/11296/3h36v3

[43] Yeh, W. J. (2013). International students' behavior intention for leisure travel participation: using perceived risk as moderate. Master's thesis, Chung Yuan Christian University Department of International Business, Taoyuan County.Retrieved fromhttps://hdl.handle.net/11296/f2jhdq

[44] Zhu, H., Deng, F. (2020). How to Influence Rural Tourism Intention by Risk Knowledge during COVID-19 Containment in China: Mediating Role of Risk Perception and Attitude. International Journal of Environmental Research and Public Health, 17(10), 3514.https://doi.org/10.3390/ijerph17103514

★★★