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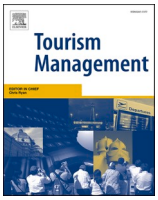

Travel decision determinants during and after COVID-19: The role of tourist trust, travel constraints, and attitudinal factors

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ABSTRACT

The COVID-19 pandemic has forced tourism practitioners to create efficient strategies to attract travelers. Using three theoretical frameworks, such as tourist trust (political, destination, and interactional trust), travel constraint (intrapersonal, interpersonal, and "social distancing" structural constraint), and extended theory of planned behavior (travel attitude, perceived behavioral control, subjective norm, perceived health risk, past travel experience), we develop a comprehensive framework to explain the impact of travel promoting, restricting, and attitudinal factors on travel decision during and after the pandemic. Data was obtained through an extensive survey conducted on 1451 Korean travelers and was analyzed using probabilistic choice models and count models. The results show the specific factors that determine travel decisions during the pandemic (whether to travel and frequency) and travel intention after the pandemic. This study provides important theoretical and practical insights into how to develop successful COVID-19 recovery strategies in the tourism industry.

1. Introduction

The tourism industry is facing an unprecedented crisis precipitated by the novel coronavirus disease 2019 (COVID-19) pandemic. According to World Travel and Tourism Council estimates for 2020, travel and tourism related GDP losses may be as high as $5543 billion and international travel arrivals could fall by as much as 75% compared with previous years (World Travel and Tourism Council, 2020). Moreover, the Organization for Economic Cooperation and Development expects that even when the pandemic has ended, an accelerated return to pre-COVID-19 is improbable in the tourism industry. This is because health concerns are likely to linger in the minds of many and result in continued reluctance to travel. 'Tourism researchers must therefore work with an anticipated 'new normal' of the tourism industry and build on their collective knowledge to help tourism organizations overcome the world-wide crisis.

In the current climate of uncertainty, a thorough understanding of all relevant factors that promote and restrict travel is critical for tourism marketers in order to devise strategies that would help attract travelers during and after the pandemic. In addition, it is important to reexamine the role of attitudinal factors behind travel decisions since an anticipated 'new normal' during and after the pandemic may challenge certain assumptions relating to travel behavior that have been taken for granted in previous studies (Kock, Nørfelt, Josiassen, Assaf, & Tsionas, 2020). This study adopts three theoretical frameworks to understand travel decisions during the pandemic and travel intention after the pandemic.

First, building on traveler trust constructs, this study proposes and examines the impact of comprehensive traveler trust constructs as three promoting factors for travel decision on travel behaviors. While most existing research focuses on traveler trust in destinations (e.g., Choi, Law, & Heo, 2016; Artigas, Yrigoyen, Moraga, & Villalón, 2017), the current study attempts to expand on traveler trust by examining the impact of three levels of trust on travel decision-the macro level of trust (political trust), the meso level trust (destination trust), and the micro level trust (interactional trust in other travelers). Specifically, trust in government or policies associated with COVID-19 affects individuals' perception of the effectiveness of measures that have been implemented, and impacts travel during the pandemic (Fancourt, Steptoe, & Wright, 2020; Henderson et al., 2020). In addition, given that multiple

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stakeholders of society are responsible for reducing the risk of public health crises (Wong & Jensen, 2020), trust in destination measures and other travelers' safety behaviors are likely to influence travel decisions during the pandemic.

Second, this study examines the impact of various travel constraints faced by prospective travelers on their travel decisions during and after the pandemic. Although travel constraints have been widely adopted by tourism studies to analyze the factors that restrict travel behaviors (e.g., Chen, Chen, & Okumus, 2013; Hung & Petrick, 2012; Nyaupane, Morais, & Graefe, 2004; Pan, Shu, Kitterlin-Lynch, & Beckman, 2021), additional constructs relating to travel constraints need to be explored to better explain the travel constraint process across different travel contexts (Hung and Petrick, 2012). Focusing on the pandemic context, this study proposes and analyzes the impact of three major travel constraints - intrapersonal constraint, interpersonal constraint, and social distancing structural constraint - on travel decision. Intrapersonal constraints are those that are associated with individuals' psychological and cognitive states (e.g., perceived safety), and these can restrict travel during the pandemic (Nyaupane et al., 2004). An example of an interpersonal constraint would be the lack of friends or family to travel with, and these can also negatively influence travel participation. Structural constraints, such as social distancing measures, are also a major cause of limited mobility (De Vos, 2020, p. 100121). It is important to empirically test impact of structural constraints on travel behavior in the pandemic.

Lastly, this research re-examines the role of theory of planned behavior in the context of the present study. This paper adopts the perspective of Kock et al. (2020) in that the new paradigm of travel caused by the pandemic requires tourism researchers to reassess the impact of existing attitudinal and psychological factors on tourist decision-making behavior. Although theory of planned behavior has been widely adopted in tourism research in the last two decades (e.g., Cheng, Lam, & Hsu, 2006; Erul, Woosnam, & McIntosh, 2020; Quintal, Lee, & Soutar, 2010), it is worthwhile to analyze how travel attitudes, perceived behavioral controls, and subjective norms influence travel decisions in times of the pandemic. In addition, following previous studies that tried to further develop theory of planned behavior with additional constructs (e.g., Manosuthi, Lee, & Han, 2020; Quintal et al., 2010), this study examines the impact of perceived health risks and past travel experiences as expanded theory of planned behavior constructs.

The proposed comprehensive framework comprising travel promoting factors (traveler trust), travel restricting factors (travel constraints), and travel attitudinal factors (extended theory of planned behavior) serve as a basis for understanding travel decisions in the pandemic era. The purpose of this study is to understand how traveler trust, travel constraints, and attitudinal factors influence travel behavior during and after the pandemic. Specifically, this research aims to answer several research questions: (1) how do various sub-constructs of traveler trust, such as political trust, destination trust, and interactional trust, influence travel decision?; (2) how do travel constraints, such as intrapersonal constraints, interpersonal constraints, and structural (social distancing) constraints influence travelers' travel decision?; and (3) how do expanded constructs of theory of planned behavior, such as travel attitudes, perceived behavioral controls, subjective norms, perceived health risks, and past travel experiences, influence travel decision? To answer these research questions, an extensive survey of Korean (prospective) travelers was conducted to measure the impact of the travel decision factors on domestic travel decisions during the pandemic, and domestic and international travel intentions after the pandemic. The study results will provide much needed insights into how to effectively promote and attract travel during and after the pandemic.

2. Literature review

2.1. Traveler trust

Most behavioral research refers to trust as an individual's psychological state to accept vulnerability based on his or her confidence and positive expectation of behavior of another (Moorman, Zaltman, & Deshpande, 1992; Rousseau, Sitkin, Burt, & Camerer, 1998). In terms of compositional structures, trust consists of multi-faceted concepts, such as cognitive trust and affective trust. Cognitive trust is developed when individuals rely on others' competence, knowledge, and reliability, whereas affective trust is based on the others' benevolence (Johnson & Grayson, 2005; Riegelsberger, Sasse, & McCarthy, 2003). While cognitive trust is based on credibility of others in exchanges, affective trust is based on emotional assessment of others' good will (Chang, 2014). The two trust dimensions reinforce one another (Czernek & Czakon, 2016).

Social exchange theory maintains that trust is a requisite for successful relationships between consumers and service providers. (Cropanzano & Mitchell, 2005). In tourism, building trust between travelers and destinations has been regarded as a critical factor for promoting travel and successfully attracting visitors to the destinations (Crotts, Coppage, & Andibo, 2001). Most existing tourism research has focused on the impact of travelers' trust towards destinations (Choi et al., 2016; Han & Hyun, 2015), online travel information (Ert, Fleischer, & Magen, 2016; Sparks & Browning, 2011; Tang & Jang, 2008), and tourism and hospitality employees (Han & Hyun, 2015; Kim, Kim, & Kim, 2009) on their travel behaviors. These studies address traveler trust issues in terms of business-to-traveler exchange processes.

During times of uncertainty, trust is a key component that holds society together and underpins people's attitudes and behaviors (Fancourt et al., 2020). Given that effective transparency and public trust are key factors required to overcome public health crises (Balog-Way & McComas, 2020), trust during the COVID-19 pandemic has been widely studied in recent public health literature. Holroyd, Oloko, Salmon, Omer, and Limaye (2020) found that public trust in health authorities is determined by effective and appropriate communications about COVID-19 measures. Henderson et al. (2020) developed a public trust model which highlights the importance of examining the relationship between government policies, public trust, and public behavior in the COVID-19 context. In the model, they suggested ten strategies for building public trust, including consistency, proactivity, credibility, and transparency. Wong and Jensen (2020) explained the paradox of trust by finding that high levels of public trust in authorities result in the underestimation of COVID-19 risks perceived by the public. Almutairi, BaniMustafa, Alessa, Almutairi, and Almaleh (2020) observed that the level of public trust in COVID-19 precautionary measures is dependent upon demographic factors; older and educated females trust the measures more than other demographics. Lastly, Bargain and Aminjonov (2020) empirically tested the negative impact of public trust in governments on mobility in the pandemic context.

While most existing public health research has focused on trust in government and authorities, to better understand how traveler trust influences travel behaviors during the pandemic and future travel intention after the pandemic, it is important to expand and analyze the impacts of broader constructs of trust (Tang & Jang, 2008; Wang, Law, Hung, & Guillet, 2014). Building on previous research (Grayson, Johnson, & Chen, 2008; Rousseau et al., 1998), this study suggests that trust is a multi-layered concept consisting of three levels of trust, namely macro level of trust (political trust), meso level trust (destination trust), and micro level trust (interactional trust in other travelers). More specifically, the extent to which prospective travelers trust governments' policies in response to the COVID-19 pandemic, destinations' safety management, and other travelers' behaviors to follow safety measures can influence their decision to travel in the pandemic.

Political trust refers to an individual's belief that a government's political system or policies will produce preferred outcomes (Miller &

Listhaug, 1990). Generally, political trust is determined by how individuals evaluate the effectiveness and performance of policies (Mishler & Rose, 2001; Nunkoo, 2015). An individual's level of political trust can impact individual behaviors. For example, if people have a high level of trust in government policies, they are likely to support the policies and follow the rules specified in the policies. This suggests that if people trust governments' overall policies in response to the COVID-19 pandemic, they are more likely to travel since they feel safer and assume that the situation is under control. In light of growing health and safety concerns, regaining traveler trust and confidence towards COVID-19 measures is the key factor for the recovery of the travel industry in the post pandemic era (World Travel Tourism Council, 2020). This indicates that future travel intention after the pandemic is likely to be determined by how individuals trust the COVID-19 policies. Thus, the following hypothesis is proposed.

Hypothesis 1. Political trust has a significant and positive impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

This principle may also apply at the destination level. Destination trust refers to the extent to which travelers have trust in the capability of destinations to provide advertised functions (Martínez & Del Bosque, 2013). Prior research has found a significant impact of destination trust on travel behaviors (e.g., Abubakar & Ilkan, 2016; Chen, 2006). During the pandemic, destination trust will be even more critical for determining travel participation since prospective travelers will be less likely to travel if they distrust a destination's safety management. In addition, whether individuals trust safety management procedures at a destination is likely to influence their perceived risk at the destination, and in turn impact subsequent decision-making behaviors (Eitzinger & Wiedemann, 2008). Thus, future travel intention after the pandemic will be determined by the extent to which individuals trust in COVID-19 measures at destinations. The following hypothesis is proposed.

Hypothesis 2. Destination trust has a significant and positive impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

Lastly, interactional trust would influence how prospective travelers feel safety levels in their travel. Interactional trust refers to an individual's belief that another individual is reliable in terms of his or her behavior or word (Wu & Chang, 2006). While much of the existing research has examined travelers' interactional trust with employees (e.g., Kim et al., 2009; Nunkoo & Gursoy, 2016), this study focuses on interactional trust between travelers. Given that COVID-19 spreads person-to-person, all people in the same place should follow health practices to protect each other (Centers for Disease Control and Prevention, 2020). This indicates that prospective travelers would be likely to travel during and after the pandemic if they trust that other travelers at destinations follow safety rules. The following hypothesis is suggested.

Hypothesis 3. Interactional trust has a significant and positive impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

2.2. Travel constraint

While trust is a travel promoting factor, travel constraint is a travel restricting factor. Building on the concept of leisure constraints, a growing number of tourism studies have focused on travel constraint since the 2000s (e.g., Chen & Petrick, 2016; Fleischer & Pizam, 2002). In general, travel constraints have been adopted to explain travel barriers faced by senior travelers (e.g., Fleischer & Pizam, 2002; Huber, Milne, & Hyde, 2018) and travelers with physical disabilities (e.g., Daniels, Rodgers, & Wiggins, 2005; Lee, Agarwal, & Kim, 2012). Based on the assumption that individuals' feelings about travel constraints inhibit their travel participation, most existing studies identify the negative impact of travel constraints on travel intention (e.g., Hung & Petrick, 2012; Lee et al., 2012).

Previous research suggests that there exist three types of travel constraints-intrapersonal constraints, interpersonal constraints, and structural constraints. Intrapersonal constraints include psychological or cognitive constraints (e.g., stress, anxiety, etc.) perceived by an individual. Interpersonal constraints are essentially social constraints, such as the unavailability of friends or acquaintances to accompany the individual in travel. Lastly, structural constraints include various types of physical or operational constraints, such as limited financial resources, lack of time, and insufficient places to visit (Nyaupane et al., 2004).

In times of the pandemic, knowing why people are not able to travel is critical for tourism marketers. Examining the impact of travel constraints on travel participation and future travel intention will help create effective strategies for attracting travelers during and after the pandemic. More specifically, the pandemic has resulted in significant intrapersonal constraints. Among multiple sub-constructs of intrapersonal constraints, one significant constraint is individuals' safety during travel (Hung and Petrick, 2010). While personal safety has been a critical constraint that prevents individuals from travelling (Chen et al., 2013), it is even more critical to understand the impact of safety on travel during the pandemic (Neuburger & Egger, 2020). The pandemic has allowed prospective travelers to be more concerned about the potential of virus infection during travel. This can negatively influence travel decisions during the pandemic and travel intention after the pandemic. Thus, the following hypothesis is proposed.

Hypothesis 4. Intrapersonal constraints have a significant and negative impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

In addition, interpersonal constraints would substantively restrict travel because the wide pandemic has had a wide impact on most prospective travelers. The COVID-19 pandemic has been accompanied by social distancing and national or regional level control measures to contain the virus. Consequently, individuals have highly limited physical activity and are socially isolated (De Vos, 2020, p. 100121). This indicates that interpersonal constraints may be one of main factors restricting travel. In addition, even if the control measures are relaxed after the pandemic, most people will be reluctant to travel, resulting in difficulties for prospective travelers in finding travel companions. Thus, interpersonal constraints would negatively impact travel during and after the pandemic. The following hypothesis is proposed.

Hypothesis 5. Interpersonal constraints have a significant and negative impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

Along with intrapersonal and interpersonal constraints, structural constraints have been of considerable interest to tourism researchers. Various types of structural constraints have been proposed in previous research, such as lack of time, lack of attractions, high cost, and long distance (e.g., Crawford & Godbey, 1987; Jackson, 2000; Nyaupane et al., 2004). Specifically, Nyaupane and Andereck (2008) examined the significant impact of high cost and lack of time constraints on travel behavior. Recently, Gao and Kerstetter (2016) expanded the structural constraint model by proposing additional constraint constructs, such as lack of information, a low reputation of tour guide, and low-quality destination facilities.

Given that structural constraints are highly dependent upon different travel contexts, further studies are needed to explore context-specific structural travel constraints (Nyaupane et al., 2004). In this regard, this study proposes social distancing as a main structural constraint during the pandemic. Social distancing refers to the public practice adopted by most countries during the pandemic with the purpose of reducing COVID-19 transmission by preventing close contacts between people (Centers for Disease Control and Prevention, 2020). Social distancing is the most common measure adopted by most governments to reduce mobility and contain the virus during the pandemic.

Importantly, social distancing has transformed the types and frequency of outdoor activities and has highly restricted travel in the pandemic (De Vos, 2020, p. 100121). This indicates that social distancing will negatively influence travel behavior and future travel intention. Thus, the following hypothesis is proposed.

Hypothesis 6. Social distancing constraint has a significant and negative impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

2.3. Extended theory of planned behavior

A chief theoretical framework used to explain travel behavior is theory of planned behaviors (Ajzen, 1985). Theory of planned behavior consists of three constructs including attitude, perceived behavioral control, and subjective norm. Attitude is a favorable or unfavorable predisposition towards a product, service, or destination. Perceived behavioral control refers to an individual's perceived abilities or possession of required skills to perform a behavior. Lastly, subjective norm indicates an individual's perceived confirmation to referent groups including family members, close friends, and others for guiding behaviors (Ajzen & Fishbein, 1980; Taylor & Todd, 1995). A large number of tourism studies have examined the impact of travel attitude, perceived behavioral control, and subjective norm on travel intention or actual travel behavior (e.g., Hsieh, Park, & McNally, 2016; Hsu & Huang, 2012).

Along with the three constructs of theory of planned behavior, some additional constructs have been suggested to expand theory of planned behavior. Among various constructs, this study focuses on perceived health risk and past travel experiences in explaining travel decision-making during the pandemic (Cheng et al., 2006; Han & Kim, 2010; Quintal et al., 2010). Travelers' perceived health risk refers to perceived risk to physical health during travel (Shin & Kang, 2020). Most existing tourism research in this area has examined the impact of travelers' perceived health risk on adventure travel decision (e.g., Bentley & Page, 2008; Buckley, 2012). In the pandemic context, perceived health risk would be a key factor that decides travel. Shin and Kang (2020) found that travelers are less likely to visit a hotel when they feel a higher level of health risk at the hotel. In addition, past travel experience also has a significant impact on travel decision. Sönmez and Graefe (1998) argued that people tend to maintain behavioral persistency, which indicates that future travel behaviors can be predictable based on past travel behaviors; those who travelled more in the past are likely to travel more in the future.

While theory of planned behavior has been widely adopted to analyze travel behaviors, it is important to examine its applicability in the pandemic context. Kock et al. (2020) argued that the impact of attitudinal and psychological factors previously taken for granted for tourist decision-making behavior need to be reassessed in the COVID-19 era. Thus, the current study proposes to examine the impact of extended theory of planned behavior (travel attitude, perceived behavioral control, subjective norm, perceived health risk, and past travel experience) on travel decisions during and after the pandemic. The following hypotheses are proposed.

Hypothesis 7. Travel attitude has a significant and positive impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

Hypothesis 8. Perceived behavioral control has a significant and positive impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

Hypothesis 9. Subjective norm has a significant and positive impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

Hypothesis 10. Perceived health risk has a significant and negative impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

Hypothesis 11. Past travel experience has a significant and positive impact on travel decisions during the pandemic (whether to travel and frequency) or future travel intention after the pandemic.

Fig. 1 is the conceptual model of this study. This figure illustrates that travel decisions during and after the pandemic are dependent upon three dimensions of construct, such as travel promoting factors (e.g., political trust, destination trust, and interactional trust), travel restricting factors (e.g., intrapersonal constraint, interpersonal constraint, and structural "social distancing" constraint), and extended theory of planned behavior factors (e.g., travel attitude, perceived behavioral control, subjective norm, perceived health risk, and past travel experience).

3. Method

3.1. Sample and data collection

For the target sample of this study, we focused on a sample of travelers and non-travelers in South Korea. South Korea is regarded as one of the countries that have successfully dealt with the COVID-19 pandemic without imposing severe lockdown measures or strict travel restrictions. Because of people's voluntary compliance with social distancing recommendations, many Korean residents were able to travel domestically during the pandemic. This makes South Korea an adequate context for analyzing travelers' travel decision during the pandemic and travel intention after the pandemic.

A self-administrated survey was conducted in South Korea. Specifically, copies of the questionnaires were distributed to Korean traveler panel samples in July 2020 with assistance from a leading research organization - Macromill Embrain (www.embrain.com). This organization specializes in rigorous and systematic panel data collection and has data collection experience with 3 million panelists as of July 2020. Several precautionary standards were applied during the data collection procedure to ensure data quality and integrity. First, survey time (either too quick or too slow) was reviewed to identify and remove careless responses. Second, those who failed to correctly answer some screening questions were removed. Third, to reduce response bias, the order of items was rotated so that each respondent had questions with different orders. It was found that the order of items has no influence on responses in terms of mean and standard deviation. Fourth, the definitions of key terms of the survey, such as COVID-19 pandemic, after the pandemic (post-pandemic), and domestic/international travels, were explained at the beginning of the survey to better communicate the meaning of survey questions. Lastly, the questionnaires were equally distributed across the three major resident areas of South Korea in terms of the number of confirmed cases – high-risk areas (Daegu and Kyungsang province), middle-risk areas (Seoul and near capital areas), and low-risk areas (other areas) to enhance the external validity of the data. Initially, a total of 1700 panelists were invited and 1521 responded to the questionnaire (response rate = 89.5%). Removing 70 survey responses, 1451 responses remained after the aforementioned standards were applied and were used for the study.

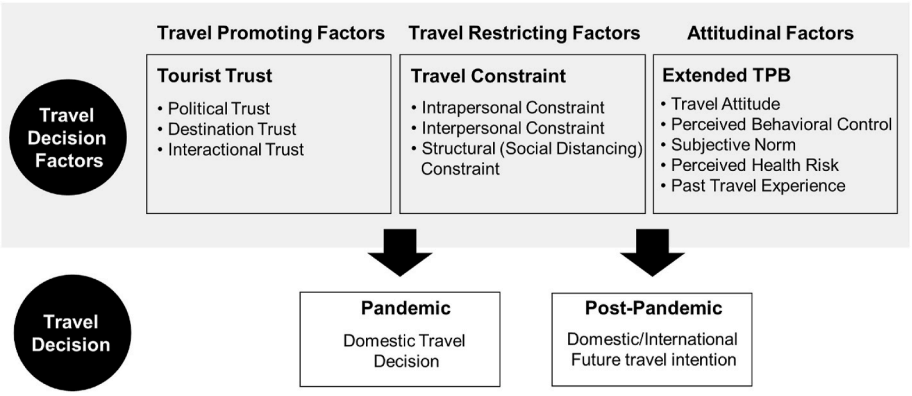

Fig. 1. The impact of travel decision factors on travel decision.

3.2. Measures

The dependent variables are defined as follows: to reflect the actual decision to travel during the pandemic, a binary variable was created so that it takes value 1 if the individual makes the trip and 0 otherwise. Travel decision was captured only for domestic trips since international travel has been significantly restricted during the pandemic. In addition, travel frequency was captured based on actual responses on the number of domestic trips by respondents. The future intention to travel after the pandemic is defined by a 5-point scale (strongly disagree [1] to strongly agree [5]). Adopting existing scales (Hsieh et al., 2016; Meng & Cui, 2020), six items were used to measure both domestic and international travel intention (three items per each). Example items are "After the pandemic, I am planning to travel around South Korea within the next 12 months" and "After the pandemic, I am planning to travel abroad within the next 12 months." Cronbach's alpha (α) values of all constructs were higher than 0.9 (domestic travel decision α = 0.92, international travel decision α = 0.93) (Hair, Black, Babin, Anderson, & Tatham, 1998).

The independent variables used to test the hypotheses stated were measured through a 5-point scale (strongly disagree [1] to strongly agree [5]). As for destination and interactional trust, eight items (four items per each) were adopted from existing scales (Choi et al., 2016; Liu, Wang, Fang, & Zhang, 2019; Su, Hsu, & Swanson, 2017). To measure political trust, four items were develop Travel attitude was measured by 5 items (enjoyable, pleasant, worthwhile, satisfying, and valuable) adopted from existing scales (Hsu, Cai, & Li, 2010; Quintal et al., 2010). To measure perceived health risk, four items were used based on existing scales (Quintal et al., 2010; Wolff, Larsen, & Øgaard, 2019; Wong & Yeh, 2009), such as "During the pandemic, travelling has been risky for my health." Past travel experience (whether the individual used to travel domestically and/or internationally in the past one year before the pandemic) was measured with a dummy variable. Cronbach's alpha (α) values of all constructs were higher than 0.8 (travel attitude α = 0.87, perceived behavioral control α = 0.90, subjective norm α = 0.89, perceived health risk α = 0.91) (Hair et al., 1998) after modifying existing scales (e.g., Grimmelikhuijsen & Knies, 2017; Hetherington & Globetti, 2002; Nunkoo, Ramkissoon, & Gursoy, 2012). Item examples are "During the pandemic, I have trusted the Korean government's policies on COVID-19," for political trust, "In terms of destination management in dealing with COVID-19, I have considered the destinations to have a high level of integrity" for destination trust, and "In terms of other travelers during the COVID-19 pandemic, I have trusted that they would avoid close contact and maintain physical distancing" for interactional trust. Cronbach's alpha (α) values of all constructs were higher than 0.8 (political trust α = 0.94, destination trust α = 0.88, and interactional trust α = 0.86) (Hair et al., 1998).

Regarding travel restricting factors, eight items were selected from existing measures (Chen et al., 2013; Hung & Petrick, 2012; Nyaupane & Andereck, 2008) to measure intrapersonal and interpersonal constraint. For example, "During the pandemic, travelling has been not safe" for intrapersonal constraint and "During the pandemic, I haven't had friends and family to travel with" for interpersonal constraint. To measure social distancing constraint, first, six initial items were developed based on discussions between three professors and two Ph.D. researchers in hospitality and tourism. After that, 15 doctoral students studying in hospitality and tourism reviewed each item and scored suitability of each item. After discussing with other authors on scores of all items, four items were finally chosen to measure social distancing constraint. For example, "During the pandemic, I could not engage in travel that I wanted because of social distancing." Cronbach's alpha (α) values of all constructs were higher than 0.9 (intrapersonal constraint α = 0.91, interpersonal constraint α = 0.93, and social distancing constraint α = 0.92) (Hair et al., 1998).

In terms of extended theory of planned behavior, perceived behavior control and subjective norm were measured using 8 items (four items for each construct) adopted from existing scales (Hsieh et al., 2016; Meng & Cui, 2020). Example items of perceived behavioral control were "During

Table 1
Descriptive statistics.

Variable	Mean/Proportion	Std. Dev.
Promoting factors		
Political trust	3.63	0.95
Interactional trust	3.14	0.89
Destination trust	3.08	0.80
Attitudinal factors		
Travel attitude	3.82	0.84
Behavioral control	3.39	0.74
Subjective norm	2.81	0.92
Restricting factors		
Intrapersonal constraint	3.47	0.89
Interpersonal constraint	2.17	0.89
Social distancing	3.66	0.87
Control variables		
Used to make domestic trips	92%	
Used to make international trips	52%	
Health risk perception	3.65	0.83
Gender	49%	
Age	44.40	13.33
High school	15%	
Bachelor	71%	
Master	11%	
Doctorate	3%	
Income 1	10%	
Income 2	9%	
Income 3	22%	
Income 4	22%	
Income 5	14%	
Income 6	23%	

the pandemic, I have had enough resources, time, and opportunities to travel." Examples items of subjective norm were "During the pandemic, most people who are important to me have thought I should travel."

As for control variables, we use: gender, measured by a dummy variable (1 = female and 0 = male); age, measured by a quantitative variable (number of years); education, measured through a categorical variable (high school, bachelor, master and doctorate), where high school is the baseline; income, measured through six categories (less than $1000; $1000-$2000; $2000-$3000; $3000-$4000; $4000-$5000; and higher than $5000). For the sake of parsimony in the estimation of the model, we group these six categories into three (less than $2000; $2001-$4000; and higher than $4000) and take the category "less than $2000" as the baseline. Table 1 shows the descriptive statistics for these variables.

All questionnaires were initially developed in English and translated into Korean by two bilingual speakers. After the translation, first and second authors of this study who can understand both languages discussed to make slight modification. The final version of the survey was confirmed by the two bilingual speakers and the two authors.

3.3. Analysis

The methodology used to test the hypotheses of the effects of promoting, restricting and extended theory of planned behavior factors on the decision to travel during the pandemic is based on Random Parameter Binomial Logit Models (estimated with GAUSS code (Train, 2009)), and on the travel frequency is based on Negative Binomial Models (estimated with Eviews).

Accordingly, regarding the travel decision, we assume that the individual n's utility function U_n of the decision to travel can be expressed as follows (Train, 2009):

$$U_n = \beta_{n0} + \sum_{g=1}^{G} \beta_{ng,PF} \cdot PF_{n,g} + \sum_{h=1}^{H} \beta_{nh,RF} \cdot RF_{n,h} + \sum_{k=1}^{K} \beta_{nk,AF} \cdot AF_{n,k} + \sum_{q=1}^{Q} \beta_{nq,CV} \cdot CV_{n,q} + \varepsilon_n$$

where $PF_{n,g}$ represents a number G of promoting factors for individual n, $RF_{n,h}$ a series of H restricting factors, $AF_{n,k}$ is a number K of theory of planned behavior factors, and the parameters $\beta_{g,PF}$, $\beta_{h,\ RF}$, and $\beta_{k,\ AF}$, capture the influence of these variables on the utility of travelling. $CV_{n,q}$ is a set of control variables and the parameters $\beta_{q,CV}$ reflect their impact on such utility. Finally, ε_i is the error term which follows an extreme value distribution. The probability of an individual travelling P_n is defined as:

$$P_n = \int_{\beta_n} \frac{\exp\left\{\beta_{n0} + \sum_{g=1}^{G} \beta_{ng,PF} \cdot PF_{n,g} + \sum_{h=1}^{H} \beta_{nh,RF} \cdot RF_{n,h} + \sum_{k=1}^{K} \beta_{nk,AF} \cdot AF_{n,k} + \sum_{q=1}^{Q} \beta_{nq,CV} \cdot CV_{n,q}\right\}}{1 + \exp \beta_{n0} + \sum_{g=1}^{G} \beta_{ng,PF} \cdot PF_{n,g} + \sum_{h=1}^{H} \beta_{nh,RF} \cdot RF_{n,h} + \sum_{k=1}^{K} \beta_{nk,AF} \cdot AF_{n,k} + \sum_{q=1}^{Q} \beta_{nq,CV} \cdot CV_{n,q}} \phi(\beta_n | b, W) d\beta_n$$

where φ represents the density function of parameters β_n, with mean b and variance W. The main advantage of a random parameter logit model over the traditional logit model is that it captures the heterogeneity in the sample, and assume that the parameters are random variables. For this specific case, we assumed the parameters follow a Normal distribution. For the simulation, we extracted 2000 random draws. Different number of draws shows that after 1000 random draws, the results are robust.

For the analysis of travel frequency, we use a count model, specifically, a Negative Binomial model (NegBin Model). Accordingly, the likelihood of individual n travelling a number y_n of times is observed by the expression (Gurmu and Trivedi, 1996):

$$P(y_n) = \frac{\Gamma(\alpha^{-1} + y_t)}{\Gamma(\alpha^{-1})\Gamma(y_t + 1)} \left(\frac{\alpha^{-1}}{\alpha^{-1} + \exp\left\{\beta_{n0} + \sum_{g=1}^{G} \beta_{ng,PF} \cdot PF_{n,g} + \sum_{h=1}^{H} \beta_{nh,RF} \cdot RF_{n,h} + \sum_{k=1}^{K} \beta_{nk,AF} \cdot AF_{n,k} + \sum_{q=1}^{Q} \beta_{nq,CV} \cdot CV_{n,q}\right\}} \right)^{\alpha^{-1}}$$

$$\left(\frac{\exp\left\{\beta_{n0} + \sum_{g=1}^{G} \beta_{ng,PF} \cdot PF_{n,g} + \sum_{h=1}^{H} \beta_{nh,RF} \cdot RF_{n,h} + \sum_{k=1}^{K} \beta_{nk,AF} \cdot AF_{n,k} + \sum_{q=1}^{Q} \beta_{nq,CV} \cdot CV_{n,q}\right\}}{\alpha^{-1} + \exp\left\{\beta_{n0} + \sum_{g=1}^{G} \beta_{ng,PF} \cdot PF_{n,g} + \sum_{h=1}^{H} \beta_{nh,RF} \cdot RF_{n,h} + \sum_{k=1}^{K} \beta_{nk,AF} \cdot AF_{n,k} + \sum_{q=1}^{Q} \beta_{nq,CV} \cdot CV_{n,q}\right\}} \right)^{y_t}$$

$$\forall y_n = \{0, 1, 2, \ldots.\}$$

where Γ is the Gamma function and the β parameters reflect the influence of the explanatory variables on P (y_t). Importantly, the parameter α captures the potential dispersion in the sample, so testing the significance of α shows whether E (y_n) and V (y_n) have the same value:

$$E(y_n) = \exp\left\{\beta_{n0} + \sum_{g=1}^{G} \beta_{ng,PF} \cdot PF_{n,g} + \sum_{h=1}^{H} \beta_{nh,RF} \cdot RF_{n,h} + \sum_{k=1}^{K} \beta_{nk,AF} \cdot AF_{n,k} + \sum_{q=1}^{Q} \beta_{nq,CV} \cdot CV_{n,q}\right\} = \lambda_t$$

and

As a travel frequency of zero means no travel at all, we need to adapt this Negative Binomial model to reflect observations with positive values in the travel frequencies. In line with Cameron and Trivedi (1998) we apply a truncated Negative Binomial:

$$P(y_n|y_n>0)=\frac{\Gamma(\alpha^{-1}+y_n)}{\Gamma(\alpha^{-1})\Gamma(y_n+1)}\left(\frac{\alpha^{-1}}{\alpha^{-1}+\exp\left\{\beta_{n0}+\sum_{g=1}^{G}\beta_{ng,PF}\cdot PF_{n,g}+\sum_{h=1}^{H}\beta_{nh,RF}\cdot RF_{n,h}+\sum_{k=1}^{K}\beta_{nk,AF}\cdot AF_{n,k}+\sum_{q=1}^{Q}\beta_{nq,CV}\cdot CV_{n,q}\right\}}\right)^{\alpha^{-1}}$$

$$\left(\frac{\exp\left\{\beta_{n0}+\sum_{g=1}^{G}\beta_{ng,PF}\cdot PF_{n,g}+\sum_{h=1}^{H}\beta_{nh,RF}\cdot RF_{n,h}+\sum_{k=1}^{K}\beta_{nk,AF}\cdot AF_{n,k}+\sum_{q=1}^{Q}\beta_{nq,CV}\cdot CV_{n,q}\right\}}{\alpha^{-1}+\exp\left\{\beta_{n0}+\sum_{g=1}^{G}\beta_{ng,PF}\cdot PF_{n,g}+\sum_{h=1}^{H}\beta_{nh,RF}\cdot RF_{n,h}+\sum_{k=1}^{K}\beta_{nk,AF}\cdot AF_{n,k}+\sum_{q=1}^{Q}\beta_{nq,CV}\cdot CV_{n,q}\right\}}\right)^{y_t}$$

$$\left(\frac{1}{1-\left(1+\alpha\cdot\exp\left\{\beta_{n0}+\sum_{g=1}^{G}\beta_{ng,PF}\cdot PF_{n,g}+\sum_{h=1}^{H}\beta_{nh,RF}\cdot RF_{n,h}+\sum_{k=1}^{K}\beta_{nk,AF}\cdot AF_{n,k}+\sum_{q=1}^{Q}\beta_{nq,CV}\cdot CV_{n,q}\right\}\right)^{\alpha^{-1}}}\right)$$

$\forall y_n=\{1,2,...\}$

Finally, to analyze the effect of promoting, restricting and theory of planned behavior factors on the future intention to travel (IT_n), an ordered probit model is used (we use Eviews to estimate this model). The future intention to travel after the pandemic is defined by a 5-point scale, thus, as a non-continuous scale that is ordinal, a method such as ordered logit is appropriate since the utility between each pair of levels on the scale varies between pairs. The utility function is defined as

$$IT_n=\delta_0+\sum_{g=1}^{G}\delta_{g,PF}\cdot PF_{n,g}+\sum_{h=1}^{H}\delta_{h,RF}\cdot RF_{n,h}+\sum_{k=1}^{K}\delta_{k,AF}\cdot AF_{n,k}+\sum_{q=1}^{Q}\delta_{q,CV}\cdot CV_{n,q}+\mu_n$$

where $PF_{n,g}$, $RF_{n,h}$, $AF_{n,k}$ and $CV_{n,q}$ are as defined previously, and $\delta_{g,PF}$, $\delta_{h,RF}$, $\delta_{k,AF}$ and $\delta_{q,CV}$ show the parameters that reflect the effects of these variables on individual n's future intention to travel after the pandemic. Finally, μ_i is a normally distributed error term.

Actually, the response variable IT_n is a non-observed latent variable. Even though IT_n is continuous, respondents selected one among five categories. Consequently, given the random term μ_i of the utility function, the probability of an individual choosing a category is defined as follows:

P ("Category 1") = P($U_n < k_1$)
P ("Category 2") = P ($k_1<U_n<k_2$)
P ("Category 3") = P ($k_2<U_n<k_3$)
P ("Category 4") = P ($k_3<U_n<k_4$)
P ("Category 5") = P ($k_4<U_n$)

This model facilitates the calculation of marginal effects of each independent variable on each category:

$$\frac{\partial P(y=i)}{\partial x}=\frac{\partial\Phi(k_{i+1}-x'\beta)}{\partial x}-\frac{\partial\Phi(k_i-x'\beta)}{\partial x}$$

where Φ is the normal cumulative function.

Table 2
Decision to travel during the pandemic.

Variable	Logit Model		Random Parameter Logit Model				
	Coeff.	t	Coeff.	t	Var(β)	t	Marginal effect
Promoting factors							
Political trust	−0.1605[b]	−2.01	−0.2586[c]	−1.74	0.4254[a]	2.09	−0.0408
Interactional trust	0.3267[a]	3.17	1.0501[a]	7.70	0.3371	1.42	0.1655
Destination trust	0.0617	0.50					
Extended theory of planned behavior factors							
Travel attitude	0.4261[a]	4.68	1.1955[a]	4.37	0.2528[a]	2.60	0.1884
Behavioral control	0.0298	0.30					
Subjective norm	0.1503[c]	1.66	1.6705[a]	8.91	0.7486[a]	3.34	0.2633
Perceived health risk	−0.1839	−1.61					
Past (domestic) travel experience	0.7430[a]	2.77	0.7423[a]	3.39	1.7728[c]	1.71	0.1170
Past (international) travel experience	−0.0701	−0.49					
Restricting factors							
Intrapersonal constraint	−0.4109[a]	−3.84	−1.4012[a]	−11.55	0.8639[c]	1.64	−0.2209
Interpersonal constraint	0.0104	0.13					
Social distancing	−0.2724[a]	−2.99	−1.0573[a]	−3.24	1.1210[a]	3.15	−0.1667
Control variables							
Gender	0.1600	1.12					
Age	0.0006	0.11					
Bachelor	−0.4465[b]	−2.15	1.3811[a]	5.56	1.0614[c]	1.94	0.2177
Master	−0.0622	−0.21					
Doctorate	−0.0897	−0.19					
Income 3+Income 4	0.1416	0.77					
Income 5+Income 6	0.5808[a]	2.82	1.2603[a]	3.87	1.2335	1.20	0.1987
Copula Past (domestic) travel experience	0.0196	0.20					
Copula Past (international) travel experience	1.7694	0.71					
Constant	0.9179	1.11	1.5367[a]	10.55			
Log-likelihood	−676.77		−695.55				

a = prob<1%; b = prob<5%; c = prob<10%.

4. Results

Before estimating the models that analyze the decision to travel during the pandemic and the future intention to travel after the pandemic, we check for potential collinearity. By looking at the variance inflation factors of all coefficients, we observe that all of them are below the value of 10 (Neter, Wasserman, & Kutner, 1989); thus, collinearity does not seem to be an issue. As heteroskedaticity cannot be rejected by the Breusch–Pagan test ($F = 4.75$; $p < 0.01$), we employ White heteroskedasticity-consistent standard errors (White, 1980).

Also relevant is the potential endogeneity that can exist caused by the introduction of the variable "experience". Hensher, Balbontin, Greene, and Swait (2020) present a comprehensive analysis of this issue, which can be summarized by the fact that if we consider experience as a consequence of a previous decision, the error of this past utility function can be correlated with the error of the current decision and its utility function thereof. Consequently, it is necessary to control for this potential endogeneity. With this goal, an instrument-free approach based on Gaussian copulas is used. It implies employing a control function to directly model the joint distribution of the error term and the variable that can be endogenous (Park & Gupta, 2012). The copula terms for the two variables related with the individual's past travel experience (*PTE*)—domestic and international—are obtained as

$$Copula_{Domestic\ PTE} = \varnothing^{-1}[H_{DPTE}(Domestic\ PTE)]$$

$$Copula_{International\ PTE} = \varnothing^{-1}[H_{IPTE}(International\ PTE)]$$

where $\varnothing^{-1}$ is the inverse of the cumulative normal distribution and $H_{DPTE}(Domestic\ PTE)$ and $H_{IPTE}(International\ PTE)$ are the empirical distribution functions of domestic and international past travel experience, respectively.

If the parameter associated with a copula is significant, then it means that endogeneity exists, and that significant parameter must be introduced in the utility function when estimating the parameters. Accordingly, in line with Mathys et al., 2016 two-stage procedure, we first include copulas for domestic and international past travel experience, and then we keep those copulas that are significant to produce the definitive estimates corrected for endogeneity.

In the presentation of the results, the first column of each model estimated we show a comprehensive model with all the variables hypothesized plus the two copulas, and next to this column we present a simplified model with significant parameters only. We use this pattern for each of the three decisions analyzed.

4.1. Decision to travel during the pandemic and frequency

Regarding the decision to travel for domestic trip during the pandemic, the right-hand section in Table 2 presents the results of the Random Parameter Logit Model, which shows evidence of heterogeneity as many parameters have significant variance, which in turn proves its superiority to the traditional logit model (left hand section in Table 2). Regarding the parameters, we find that interactional trust, travel attitude, subjective norm, and past domestic travel experience show positive effects on the likelihood of an individual making a domestic trip, supporting hypotheses 3, 7, 9, and 11. On the other and, political trust, intrapersonal constraint, and social distancing constraint present negative effects, supporting hypotheses 4 and 6. Thus, the promoting factors exert a positive effect via interactional trust while political trust exert a negative influence. The theory of planned behavior factors exert positive impacts via the travel attitude, subjective norm, and past domestic travel experience (behavioral control does not have any effects), and the restricting factors have negative effects via intrapersonal and social distancing constraints. The analysis of the marginal effects of these significant variables allows us to compare the magnitudes of the different variables. Accordingly, subjective norm with a marginal effect of 0.2633 shows the largest positive effect on the decision to travel during the pandemic, followed by bachelor (0.2177), Income 5+Income 6 (0.1987), travel attitude (0.1884), interactional trust (0.1655), and past (domestic) travel experience (0.1170). With negative marginal effects we find political trust (−0.0408), social distancing (−0.1667) and intrapersonal constraint (−0.2209).

No effect was found concerning destination trust, interpersonal constraint, perceived behavioral control, and perceived health risk, rejecting hypotheses 1, 2, 5, 8, and 10. Concerning control variables, the level of education "Bachelor" has significant and negative effects on the probability of travelling and the highest category of income shows a positive effect on this likelihood.

As for the travel frequency during the pandemic (Table 3), travel attitude, subjective norm, and past (domestic) travel experience present positive effects, thus favoring hypotheses 7, 9 and 11; and perceived health risk and social distancing exert negative effects, in line with hypotheses 6 and 10. Regarding the marginal effects of the significant variables we find that past (domestic) travel experience has the largest marginal effect with 1.6724, followed by Income 5+Income 6 (1.2384), Income 3+Income 4 (1.1991), travel attitude (1.1298), subjective norm (1.0920), age (0.9942), social distancing (0.9251) and perceived health risk (0.8929). As for control variables, age has a negative effect and income a positive effect.

Table 3
Travel frequency.

Variables	NegBin Model 1		NegBin Model 2		
	Coeff.	t	Coeff.	t	Marginal effects
Promoting factors					
Political trust	0.0411	1.39			
Interactional trust	0.0211	0.56			
Destination trust	0.0225	0.52			
Extended theory of planned behavior factors					
Travel attitude	0.0864[b]	2.25	0.1221[a]	3.51	1.1298
Behavioral control	0.0602	1.50			
Subjective norm	0.0600[c]	1.84	0.0880[a]	3.02	1.0920
Perceived health risk	−0.0825[b]	−2.15	−0.1132[a]	−3.60	0.8929
Past (domestic) travel experience	0.5235[a]	4.97	0.5143[a]	5.07	1.6724
Past (international) travel experience	0.0825	1.59			
Restricting factors					
Intrapersonal constraint	−0.0553	−1.46			
Interpersonal constraint	−0.0093	−0.31			
Social distancing	−0.0651[b]	−2.15	−0.0778[a]	−2.66	0.9251
Control variables					
Gender	−0.0527	−1.04			
Age	−0.0069[a]	−3.44	−0.0058[a]	−3.09	0.9942
Bachelor	−0.0722	−1.01			
Master	0.0517	0.54			
Doctorate	0.2267	1.51			
Income 3+Income 4	0.1633[b]	2.35	0.1815[a]	2.64	1.1991
Income 5+Income 6	0.1726[b]	2.34	0.2138[a]	2.99	1.2384
Copula Past (domestic) travel experience	−0.0306	−0.90			
Copula Past (international) travel experience	1.0398	1.19			
Constant	0.9360[a]	3.20	1.0809[a]	4.08	
α (dispersion parameter)	−0.8930	−14.71	−0.8654	−14.39	
LR statistic	1784.4		1761.2		

a = prob<1%; b = prob<5%; c = prob<10%.

Table 4
Future intention to travel.

Varaibles	Intention to travel domestic				Intention to travel abroad			
	Ordered Probit Model 1		Ordered Probit Model 2		Ordered Probit Model 3		Ordered Probit Model 4	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Promoting factors								
Political trust	0.2677[a]	4.32	0.2914[a]	5.08	−0.2240[a]	−3.85	−0.2225[a]	−3.84
Interactional trust	0.1803[b]	2.22	0.1944[a]	3.08	0.0831	1.07		
Destination trust	0.0242	0.25			0.2346[b]	2.51	0.2916[a]	4.00
Extended theory of planned behavior *factors*								
Travel attitude	0.6734[a]	8.83	0.6174[a]	8.72	0.0089	0.13		
Behavioral control	0.3044[a]	3.72	0.2634[a]	3.46	0.1717[b]	2.18	0.1772[b]	2.32
Subjective norm	−0.1051	−1.52			0.3520[a]	5.29	0.3605[a]	5.59
Health risk perception	−0.1728[b]	−2.09	−0.1671[b]	−2.05	−0.0440	−0.56		
Past (domestic) travel experience	0.3548[c]	1.74			−0.2951	−1.53		
Past (international) travel experience	0.1370	1.26			0.3973[a]	3.87	0.4567[a]	4.70
Restricting factors								
Intrapersonal constraint	−0.1860[b]	−2.35	−0.1624[b]	−2.08	−0.1568[b]	−2.07	−0.1686[a]	−2.89
Interpersonal constraint	−0.2989[a]	−4.79	−0.3251[a]	−5.33	0.1843[a]	3.15	0.1732[a]	3.08
Social distancing	0.1682[a]	2.58	0.1662[a]	2.56	0.0044	0.07		
Control variables								
Gender	0.0068	1.60	−0.2299[b]	−2.22	0.0104[b]	2.56	−0.3527[a]	−3.63
Age	−0.1917[c]	−1.80			−0.3433[a]	−3.41	0.0104[a]	2.83
Bachelor	0.3104[b]	2.08	0.2302[b]	2.00	0.2158	1.50		
Master	0.1363	0.66			0.1369	0.69		
Doctorate	0.7206[b]	2.10	0.7518[b]	2.30	0.2156	0.69		
Income 3+Income 4	0.1909	1.35			−0.1302	−0.96		
Income 5+Income 6	0.2097	1.37			0.0992	0.68		
Copula Past (domestic) travel experience	0.0126	0.18			−0.2283[a]	−3.40		
Copula Past (international) travel experience	−1.1860	−0.63			−0.7521	−0.43		
Threshold k_1	0.2501	0.39	−0.6535	−1.24	0.5996	1.03	0.7712[c]	1.86
Threshold k_2	1.8837[a]	3.01	0.9769[c]	1.93	2.0955[a]	3.59	2.2542[a]	5.41
Threshold k_3	3.6136[a]	5.75	2.7017[a]	5.32	3.3491[a]	5.70	3.4934[a]	8.26
Threshold k_4	6.3764[a]	9.89	5.4466[a]	10.38	4.9718[a]	8.30	5.0994[a]	11.64
Pseudo R-squared	0.087		0.083		0.047		0.042	
LR statistic	312.0[a]		299.5		205.1		182.6	

a = prob<1%; b = prob<5%; c = prob<10%.

Table 5
Marginal effects on intention to travel domestic.

Variables	Category 1	Category 2	Category 3	Category 4	Category 5
Political trust	−0.000008	−0.0027	−0.0667	0.0434	0.0261
Interactional trust	−0.000006	−0.0018	−0.0445	0.0289	0.0174
Travel attitude	−0.000018	−0.0057	−0.1413	0.0919	0.0552
Behavioral control	−0.000007	−0.0025	−0.0603	0.0392	0.0236
Health risk perception	0.000005	0.0016	0.0383	−0.0249	−0.0149
Intrapersonal constraint	0.000005	0.0015	0.0372	−0.0242	−0.0145
Interpersonal constraint	0.000009	0.0030	0.0744	−0.0484	−0.0291
Social distancing	−0.000005	−0.0015	−0.0381	0.0247	0.0149
Gender	0.000007	0.0021	0.0526	−0.0342	−0.0206
Age	−0.000007	−0.0021	−0.0527	0.0343	0.0206
Doctorate	−0.000021	−0.0070	−0.1721	0.1119	0.0672

4.2. Future intention to travel after the pandemic

Regarding domestic trips (Table 4), the key variables of interest that have significant effects are: i) within promoting factors, we find that political trust, interactional trust have significant and positive influences; ii) within theory of planned behavior factors, we observe that travel attitude and behavioral control have significant and positive influences and health risk perception is a significant and negative influence; and iii) within restricting factors, we find that intrapersonal constraint and interpersonal constraint have significant and negative parameters, and social distancing shows a significant and positive parameter. As for control variables, gender has a negative effect and the level of education "Bachelor" and "Doctorate" have significant and positive effects on the probability of travelling.

Concerning international trips, the central variables of interest that have significant effects are: i) within promoting factors, we find that political trust has a significant and negative influence and destination trust has a significant and positive influence—note that for international trips, interactional trust is not significant, and destination trust becoming relevant contrary to domestic trips; ii) within theory of planned behavior factors, we observe that behavioral control, subjective norms, past international travel experience have significant and positive influences; and iii) within restricting factors, we find that interpersonal constraints have a significant and positive parameter—note that, while this variables has a negative sign for domestic trips, it has a positive for international trips. In terms of future travel intention after the pandemic, hypotheses 4 and 8 were supported, hypotheses 1, 2, 3, 5, 7, 9, 10 and 11 were partially supported, and Hypothesis 6 was rejected. Tables 5 and 6 show the marginal effects, where we can see that for the significant variables, the effects on intentions to travel vary across categories. Specifically, Table 5 shows the marginal effects on intention to travel domestic. For illustrative purpose, we find interesting the comparison of the extreme categories. For category 1, the largest marginal positive effect is presented by interpersonal constraint, followed by gender, health risk perception, intrapersonal constraint and social distancing. Next, with negative marginal effects go interactional trust, behavioral control, age, political trust, travel attitude and doctorate. Interestingly, for category 5, this order is almost inverted, thus, doctorate exerts the largest positive marginal effect, followed by travel attitude, political trust, behavioral control, age, interactional trust, social distancing; and with negative marginal effects are intrapersonal constraint, health risk perception, gender and interpersonal constraint.

Table 6
Marginal effects on intention to travel abroad.

Variables	Category 1	Category 2	Category 3	Category 4	Category 5
Political trust	0.0405	0.0459	−0.0563	−0.0294	−0.00078
Destination trust	−0.0531	−0.0602	0.0738	0.0385	0.00103
Behavioral control	−0.0322	−0.0366	0.0448	0.0234	0.00062
Subjective norm	−0.0656	−0.0745	0.0912	0.0476	0.00127
Past (international) travel experience	−0.0831	−0.0943	0.1155	0.0603	0.00161
Intrapersonal constraint	0.0307	0.0348	−0.0427	−0.0223	−0.00059
Interpersonal constraint	−0.0315	−0.0358	0.0438	0.0229	0.00061
Gender	−0.0019	−0.0022	0.0026	0.0014	0.00004
Age	0.0642	0.0728	−0.0892	−0.0466	−0.00124

Table 7
Results of hypotheses testing.

Hypotheses	The decision to travel for domestic trip during the pandemic		Future intention to travel after the pandemic (Domestic and International travel)
	Whether to Travel	Travel Frequency	
H1 (Political trust → Travel decision)	Rejected	Rejected	Partially Supported
H2 (Destination trust → Travel decision)	Rejected	Rejected	Partially Supported
H3 (Interactional trust → Travel decision)	Supported	Rejected	Partially Supported
H4 (Intrapersonal constraints → Travel decision)	Supported	Rejected	Supported
H5 (Interpersonal constraints → Travel decision)	Rejected	Rejected	Partially Supported
H6 (Social distancing constraint → Travel decision)	Supported	Supported	Rejected
H7 (Travel attitude → Travel decision)	Supported	Supported	Partially Supported
H8 (Perceived behavioral control → Travel decision)	Rejected	Rejected	Supported
H9 (Subjective norm → Travel decision)	Supported	Supported	Partially Supported
H10 (Perceived health risk → Travel decision)	Rejected	Supported	Partially Supported
H11 (Past travel experience → Travel decision)	Supported	Supported	Partially Supported

Table 6 shows the marginal effects on intention to travel abroad. For category 1, age has the largest marginal positive effect, followed by political trust, intrapersonal constraint, all of them with positive signs. Next, with negative signs, gender, interpersonal constraint, behavioral control, destination trust, subjective norm, and past (international) travel experience. For category 5, just as the domestic case, this order is inverted, with past (international) travel experience showing the largest marginal positive effect, followed by subjective norm, destination trust, behavioral control, interpersonal constraint and gender. Next, with negative signs, intrapersonal constraint, political trust and age. Lastly, Table 7 explains the results of testing all hypotheses.

5. Conclusions

The COVID-19 pandemic has been an unprecedented crisis in the tourism industry. To provide critical insights into the impact of the pandemic on travel, this study empirically examined the impacts of travel promoting, restricting, and attitudinal factors on domestic travel experience during the pandemic and domestic/international travel intention after the pandemic by conducting a large survey of Korean tourists. First, this study attempts to expand on traveler trust by examining the impact of three levels of trust on travel decisions-the macro level of trust (political trust), the meso level trust (destination trust), and the micro level trust (interactional trust in other travelers). Second, although travel constraint frameworks have been widely used by tourism studies to analyze the factors that restrict travel behaviors, this study proposes further constructs of travel constraints to better explain the travel constraint process in the pandemic context. Lastly, this study re-examines and expands the theory of planned behavior in the context of the present study by including the impact of perceived health risk and past travel experience on travel behavior. The proposed comprehensive framework of tourist trust, constraint, and attitudinal constructs contribute to understanding travel processes during and after the pandemic. The following section discusses both theoretical and practical implications of this study.

5.1. Theoretical implications

Recently, a growing number of tourism studies investigate the impact of the pandemic on travel. In one of the earliest studies on the topic, Gössling, Scott, and Hall (2020) assessed the impact of the pandemic on the tourism industry including airlines, accommodation, event, restaurant, and cruise sectors, and provided a new perspective on sustainable tourism development in the post-pandemic era. Yousaf (2021) qualitatively developed a multi-dimensional concept of travel burnout from the conservation of resources theory perspective. He insisted that travel psychology, especially negative psychology, is an important domain that needs further scholarly attention in tourism crisis situations. Some research empirically tested the impact of the pandemic on travel. Qiu, Park, and Song (2020) focused on the social cost of tourism by investigating residents' willingness to pay to reduce the risk of COVID-19. They found most residents of travel destinations, especially younger residents, are willing to pay for the recovery of the pandemic. Neuburger and Egger (2020a, 2020b) identified four distinctive traveler clusters (e.g., the nervous, the reserved, the anxious, and the relaxed) based on COVID-19 perception, travel risk perception during the pandemic, and their impact on travel behavior.

Although limited, a few studies focus on travel psychology and behavior issues in the pandemic. Kock et al. (2020) proposed evolutionary psychology as a theoretical lens to understand tourists' psyche and empirically tested how the pandemic influences the tourists' psyche. Specifically, they found that perceived COVID-19 infectability is related to ethnocentrism, crowdedness, and xenophobia, and tested the positive impact of the infectability on safe travel options, such as group travel, travel insurance, and destination loyalty (visiting familiar destinations). Most recently, Zheng, Luo, and Ritchie (2021) examined how the pandemic travel fever influences protection motivation and travel avoidance by integrating protection motivation theory and coping and resilience theories. Still, there has been scarce research empirically examining the impact of travel determinant factors on travel decisions during the pandemic and travel intention after the pandemic.

This study attempts to fill this gap by providing important empirical insights into the role of various factors in influencing travel decision during and after the pandemic by integrating three theoretical

frameworks. First, the positive impact of interactional trust on travel decision indicates the importance of social trust between travelers for promoting travel in times of uncertainty; thus, building interactional trust between travelers will be a key to attract travelers to destinations. However, contrary to the assumption, the negative impact of political trust on travel decision indicates people try to avoid travel as a way of supporting travel policies during the pandemic (Park & Blenkinsopp, 2011). Given that most government policies for COVID-19 are purposed to restrict travel for mitigating virus spread, this result shows that individuals are less likely to travel when they trust COVID-19 policies. This result supports the finding by Bargain and Aminjonov (2020) that high levels of public trust decrease the public's mobility associated with non-crucial activities. Unlike existing studies (e.g., Abubakar & Ilkan, 2016; Chen, 2006), this study did not find a significant impact of destination trust on travel decisions. This result implies that building macro (policy) and micro (interactional) level trust is more important than building destination trust for attracting travelers in times of the pandemic.

Second, in terms of travel restricting factors, this study found negative impacts of intrapersonal and social distancing constraints on travel decision. This result is aligned with existing findings on the significant and negative impact of intrapersonal and structural constraints on travel decision (Hung and Petrick, 2010; Kim & Chalip, 2004). Following conceptual linkage between social distancing and travel decision (Gössling et al., 2020), the significant impact of social distancing constraint on travel decision and frequency empirically proves the critical role of social distancing measures on travel behavior. While previous research tried to explore additional constructs of structural constraints (e.g., Hudson & Gilbert, 2000; Nyaupane & Andereck, 2008; Pennington-Gray & Kerstetter, 2002), the study result indicates that social distancing needs to be considered as a new dimension of structural constraint during the pandemic. The insignificant impact of interpersonal constraint explains that who to travel with is of less importance.

Third, the significant impact of travel attitude, subjective norm, and past domestic travel experience on travel decision and frequency demonstrates that extended theory of planned behavior can be applicable to explain travel behavior in the pandemic context. This study did not find a significant impact of perceived behavioral control on travel decision, a result which contradicts previous studies (e.g., Bagozzi & Yi, 1989; Hsu & Huang, 2012). The study finding shows that self-confidence in abilities or perceived possession of required skills for travel are not important for making a travel decision during the pandemic. Instead, individuals are likely to travel when they feel their decision to travel is supported by others (Ajzen & Fishbein, 1980). This suggests that social support is an important factor promoting travel during the pandemic. In terms of the impact of control variables, people who hold bachelor's degrees are less likely to travel and people with high income are more likely to travel. The results indicate that education and income levels are critical factors that determine travel decision during the pandemic.

Fourth, this study also identified the factors that influence travel intention after the pandemic. Interestingly, it was found that some decision-making factors are different between domestic travel intention and international travel intention. While some of the existing research has examined the negative role of political trust in mobility and travel engagement (e.g., Aminjonov, 2020; Wong & Jensen, 2020), this study found that political trust has a significant and positive impact on domestic travel intention whereas it has a significant and negative impact on international travel intention. This explains that Korean travelers are likely to only travel domestically (not internationally) after the pandemic when they highly trust the Korean government's COVID-19 policies. This result is also contrary to the negative impact of political trust on travel decision during the pandemic. It might explain that if individuals trust a government's COVID-19 policies, they will feel safer, leading to a higher intention to travel domestically in the future (Rudolph and Evans, 2005). This result supports the paradox of trust that high levels of public trust in authorities result in the underestimation of COVID-19 risk perceived by the public (Wong & Jensen, 2020). In addition, interactional trust has a significant and positive impact only on domestic travel intention while destination trust has a significant and positive impact on international travel intention. The results demonstrate the importance of building interpersonal trust between domestic travelers and the significance of making safe destinations especially for international travelers after the pandemic.

In addition, the results show that the impact of theory of planned behavior factors on travel intention after the pandemic is different depending on travel types. Unlike travel decision during the pandemic, subjective norm has no impact on domestic travel intention. Instead, perceived behavioral control has a significant and positive impact on the travel intention. This point supports the view that social support become less important but perceived abilities and confidence will be more important for future travel decision (Ajzen, 1985; Meng & Choi, 2016). However, the subjective norm is important for international travel intention after the pandemic. This explains that international travel would require more social support than domestic travel after the pandemic. In terms of perceived health risk, it only negatively influences domestic travel intention, which supports most previous studies (e.g., Hsieh et al., 2016; Quintal et al., 2010). The insignificant impact of perceived health risk on international travel intention explains that prospective travelers care less about health risk when they travel abroad after the pandemic. The novelty-seeking tendency for international travel could explain this result (Assaker & Hallak, 2013).

Lastly, contrary to most research that found the negative impact of travel constraints on travel behavior (Chen & Petrick, 2016; Pennington-Gray & Kerstetter, 2002), the positive impact of some travel constraints on travel intention provides a nuanced insight into the impact of travel constraints. Specifically, social distancing constraint has a positive and significant impact only on domestic travel intention. This indicates that individuals who feel higher levels of social distancing constraint are more likely to travel domestically after the pandemic. This result supports the point that structural constraint is a context-specific issue; after the pandemic, social distancing will be less important in influencing travel decision (Hung and Petrick, 2010).

While existing research found negative impact of interpersonal constraint on travel behavior (e.g., Nyaupane et al., 2008), the significant and positive impact of interpersonal constraint on international travel intention implies that there is a desire among prospective travelers to build social connections via international travel when the pandemic is over. The significant and positive impact of age on travel intention indicates that elderly people have a higher intention to travel domestically and internationally after the pandemic. Given that older groups are more vulnerable to COVID-19, this result implies that their travel has been highly restricted, resulting in a higher travel intention after the pandemic. The negative impact of female on international travel intentions indicates that female tourists are less likely to travel abroad even after the pandemic. This result supports the notion that female travelers perceive greater risk compared to male travelers in international travel (Yang, Khoo-Lattimore, & Arcodia, 2018).

5.2. *Practical implications*

This study has several practical implications for travel practitioners and destination marketers. First, during the pandemic, they need to come up with strategies to build political and interactional trust. Because the virus is rapidly evolving, government officials need to effectively communicate COVID-19 policies to encourage safe travel. Destinations need to create a safe environment where visitors can trust each other by taking strong actions (e.g., strict social distancing rules, deporting visitors for violating rules, etc.). In addition, tourism marketers need to reduce intrapersonal and social distancing constraints. Ensuring safety via social distancing measures is important, but it is equally important to make destinations where travelers feel comfortable with proper social distancing measures which would not make negative

impacts on travel experiences.

Second, the study results explain how travel practitioners effectively may establish strategies to attract travelers to destinations after the pandemic, even more so considering that the strategy of "Preparing for Tomorrow" outlined by the UNWTO is yet to be fully adopted (Kreiner & Ram, 2020). The negative impact of political trust on international travel intention explains that governments need to make travel policies which can have international travelers feel safe to visit their countries when the pandemic is over. Otherwise, they would prefer to travel domestically. In addition, destinations which highly rely on international travelers should focus on building destination trust since international travelers would be less willing to visit destination that they do not trust. The strong impact of subjective norm on international travel intention shows that social supports is important for international travel decision after the pandemic. Thus, travel practitioners should advertise the safe environment of destinations to the broader public.

Lastly, the results of this study show some important tourism market segments. The insignificant impact of interpersonal constraint on travel decision explains a new emerging travel market – solo travelers. Travel marketers need to pay attention to this market and establish strategies to attract them. In addition, the positive impact of age on future travel intention after the pandemic indicates the importance of senior tourist market. It is assumed that they have a stronger intention for both domestic and international travel since their travel has been highly restricted during the pandemic. Travel marketers need to focus on this market after the pandemic.

5.3. Limitations and future research

Future research opportunities are identified by acknowledging research limitations. First, future research may need to explore further constructs of travel constraint, tourist trust, and extended theory of planned behavior. While this study attempts to examine the impact of extensive factors on travel behaviors during and after the pandemic, further constructs (e.g., trust in employees, place constraint, time constraint, cost constraint, etc.) may have impacts on travel decision (Kim et al., 2009; Nyaupane & Andereck, 2008). In addition, future research needs to examine the impact of travel determinant factors, such as government restrictions, safety measures, vaccination, having a family member affected by COVID-19, lack of available travel resources, households' economic status, general personality traits, and emotional sentiment on travel behavior. Understanding their role in travel will help better understand the travel behavior in the COVID-19 pandemic era.

Second, future research needs to expand the context of study by focusing on travelers with other nationalities. Since this study concentrated on Korean travelers, the study results are hard to be generalized into broader travelers. Given that travel decision is highly influenced by cultural factors (Crotts & Erdmann, 2000), future research may examine how cultural differences influence the impact of decision-making factors on travel decision. For example, the impact of interactional trust on travel decision can be influenced by collectivism vs individualism (Hofstede & Bond, 1984); the impact of interactional trust on travel decision can be stronger for travelers in collectivistic culture, such as South Korea. In addition, other decisions such as the specific location the individual is travelling to and the transportation mode selected could also show the factors that are more relevant and extend our understanding the of the different choices individuals make.

Lastly, following research needs to analyze the impact of travel promoting and restricting factors on international travel intention when the pandemic is over. During the pandemic, international travel have been highly restricted, which can potentially influence how travelers perceive decision-making factors and their impact on international travel intention. Thus, post-pandemic contexts will be more appropriate to investigate travel intention for international travel.

Impact statement

The results of this study explain how travel practitioners effectively may establish strategies to attract travelers to destinations after the pandemic, even more so considering that the strategy of "Preparing for Tomorrow" outlined by the UNWTO is yet to be fully adopted. Also, the results of this study show some important tourism market segments. The insignificant impact of interpersonal constraint on travel decision explains a new emerging travel market – solo travelers. Travel marketers need to pay attention to this market and establish strategies to attract them. In addition, the positive impact of age on future travel intention after the pandemic indicates the importance of senior tourist market. It is assumed that they have a stronger intention for both domestic and international travel since their travel has been highly restricted during the pandemic. Travel marketers need to focus on this market after the pandemic.

Authors' contribution

All the authors contributed equally to this article.

Declaration of competing interest

None.

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