震災後のインバウンド観光
ー分析と政策的示唆ー
Post-disaster inbound tourism: An analysis and policy implication

運輸政策研究所
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発表の構成

- 研究の背景
- 研究の目的
- 東日本大震災前後の訪日行動の変化に関する調査
  - 概要
  - 調査内容
  - 回答者属性
  - 震災前後の訪日行動
- 分析
  - （1）震災後の訪日有無の理由
  - （2）震災後の旅行者の選択行動
- まとめと政策への示唆

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研究の背景

観光産業の災害に対する脆弱性

The tourism industry is inherently vulnerable to interruption by risk and disasters.

e.g., 911 terrorism attack (2001)
SARS (2003)
Indian Ocean tsunami (2004)
Christchurch (New Zealand) earthquakes (2011)

供給サイドの分析に偏っている先行研究の限界

So far, a large number of studies have been conducted concerning risk management in tourism research field. However, most of the existing studies focus on the supply side. Limited effort has been made for an understanding of tourists' behavior under risk and its implication for the tourism industry.

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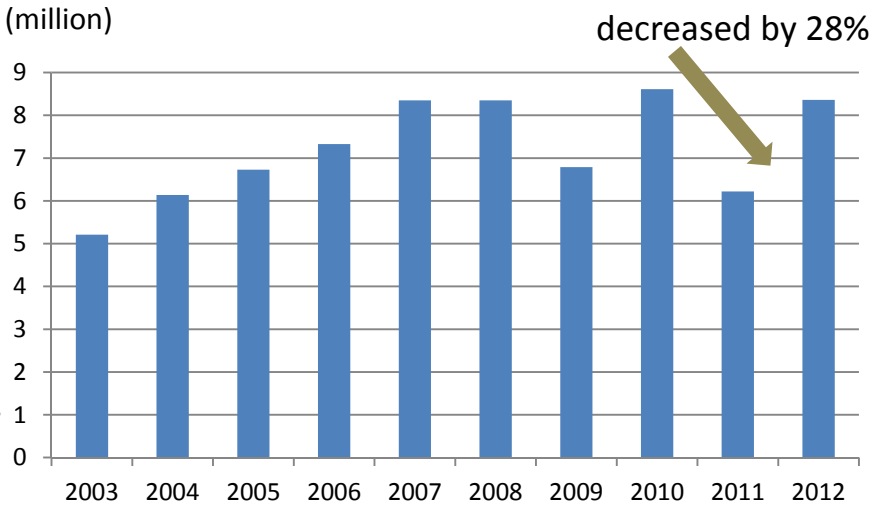
研究の背景

東日本大震災による訪日旅行者数の減少

On March 11th 2011, an earthquake happened in the Tohoku area of Japan. The disaster saw a sharp decrease in the number of international tourism arrivals in Japan.



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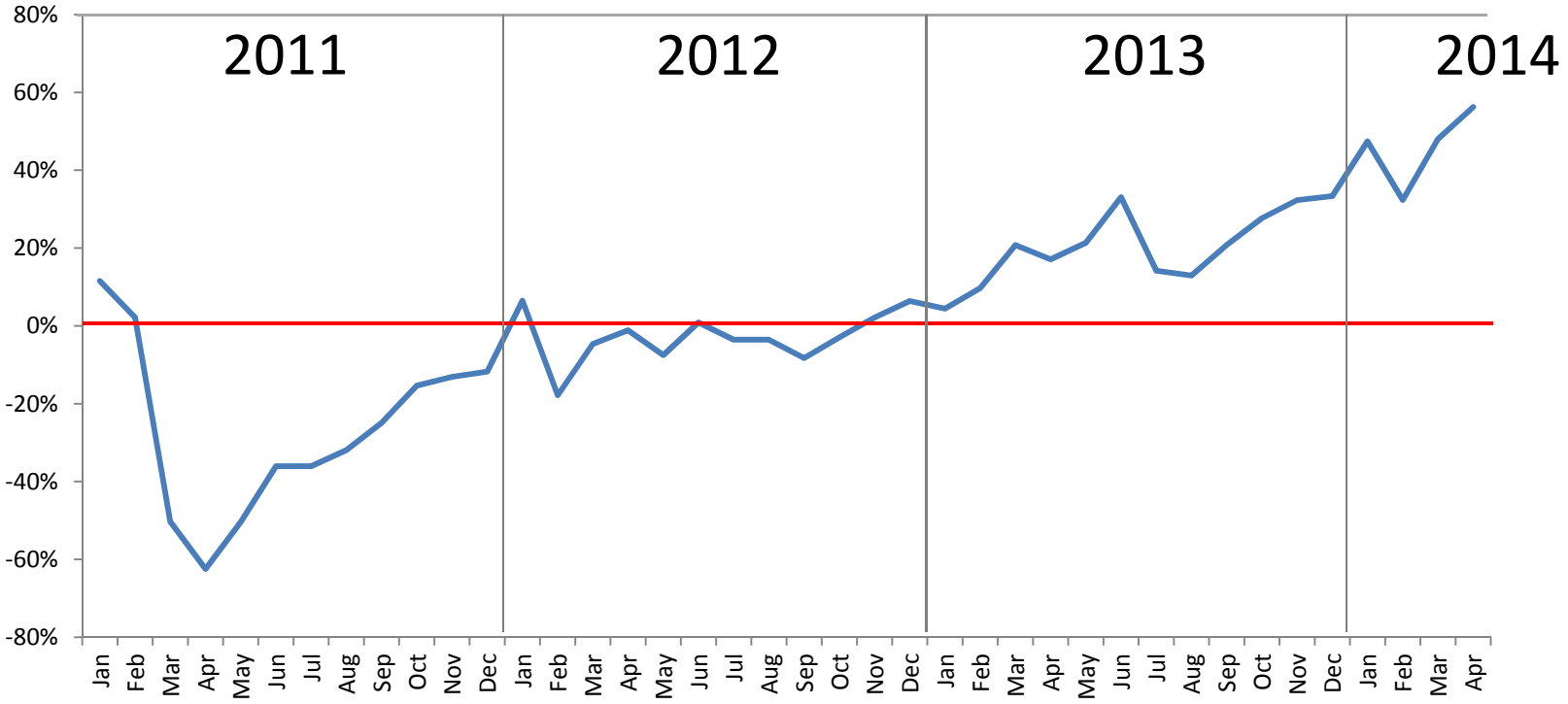
研究の背景

東日本大震災後の訪日旅行者数の回復

In order to attract tourists back, the Japanese government has implemented a series of countermeasures to revitalize the tourism industry. From the end of 2012, inbound tourism demand has recovered to the level before the earthquake.



Change rate by comparing with inbound tourism demand in 2010

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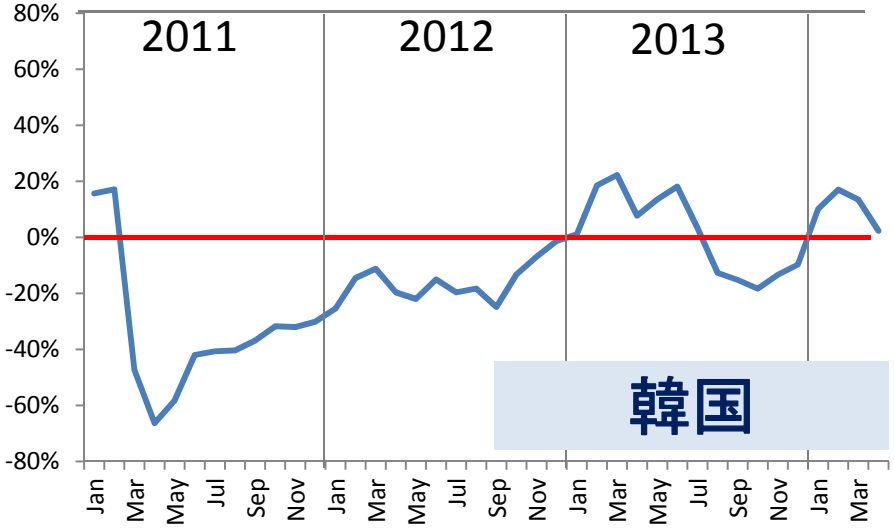
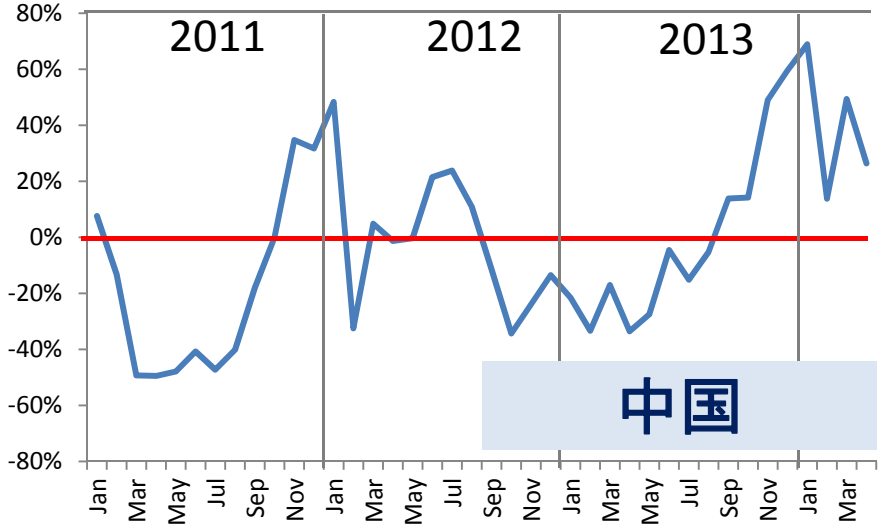
研究の背景

国によって異なる回復パターン

However, the recovery process of different markets showed different patterns and the travel intention to Japan still remains low among some segmentation of international tourists.





震災に対する旅行者の対応行動の理解が必要

To address these issues and provide the tourism industry in Japan with critical insights for their tourism recovery and resilience decision-making, it is necessary to get a better understanding of international tourists' behavior response to the earthquake.

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研究の目的

In this study, we are especially focusing on the following questions:

(1) 訪日旅行者の震災後に訪日した/しなかった理由の明確化

What are the key reasons international tourists would / would not travel to Japan following the earthquake?

(2) 震災後に訪日した/しなかった理由と個人属性の関連性

Are these reasons different across tourists with different demographic factors (age, gender, income, etc)?

(3) 震災後の旅行者は、どう対応（キャンセル、変更、訪日）したか？「個人属性」「訪日回数」「旅行目的」「リスク認知（震災後の日本の印象）」と対応の関連性

How did international tourists response to the earthquake? How did demographic background, past travel experience, trip purpose, and risk perception influence their behavior response?

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調査の概要

調査実施	運輸政策研究所
調査時期	2014年1月
対象地域	韓国, 中国（北京,上海）
調査対象者	対象地域の居住者
調査方法	Web調査
サンプル数	韓国　：500 サンプル 北京　：500 サンプル 上海　：500 サンプル
調査内容	個人属性 性別、年齢、学歴、年収、訪日回数 東日本大震災への対応

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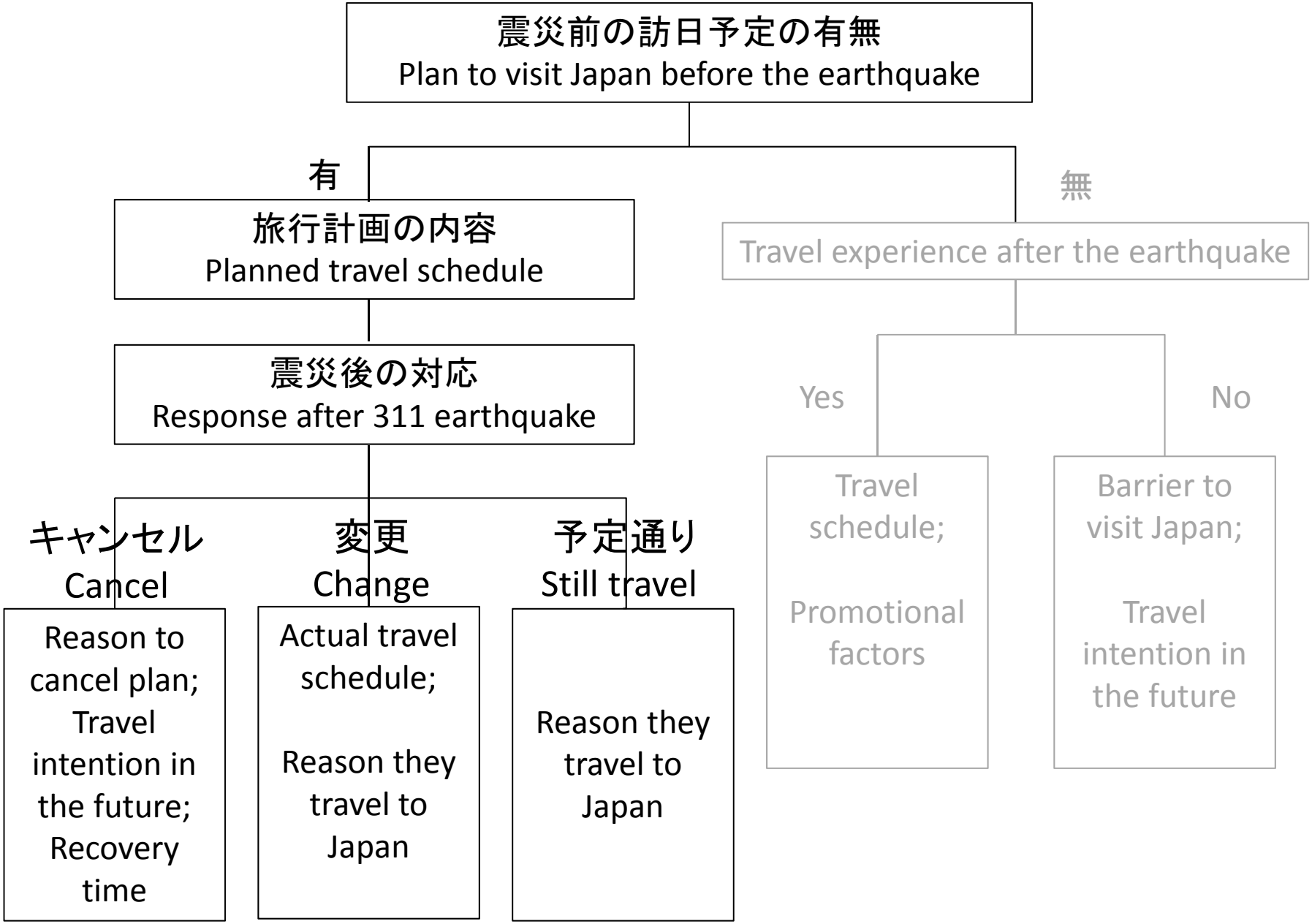
調査内容



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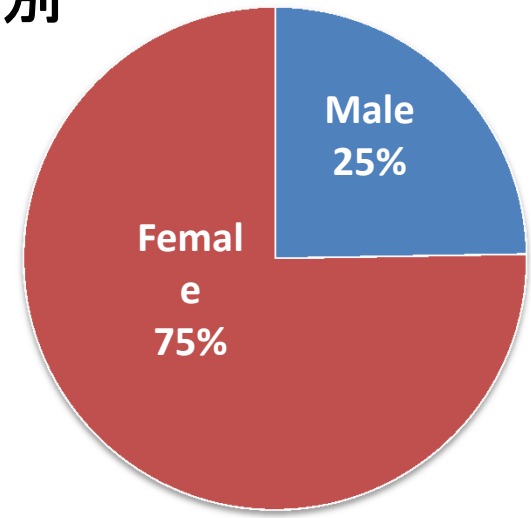
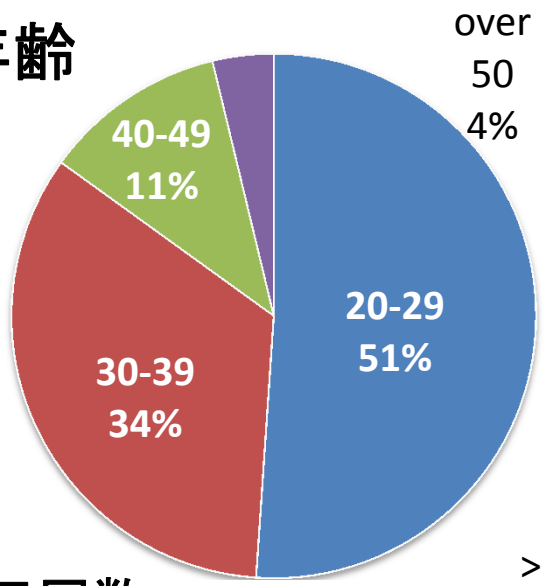
回答者属性（韓国）

性別



年齢



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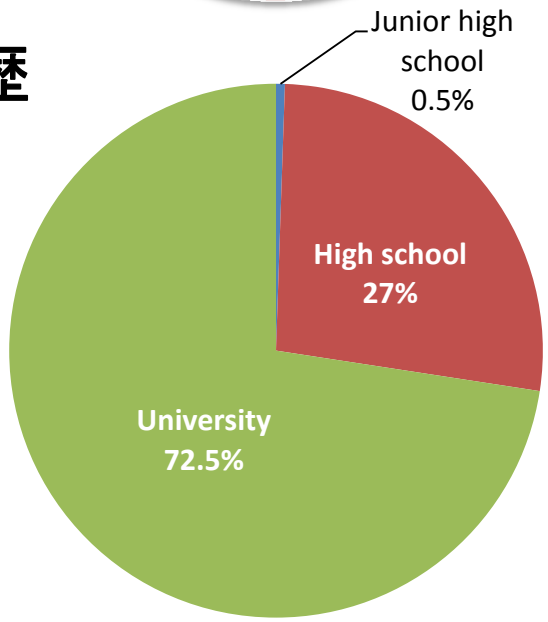
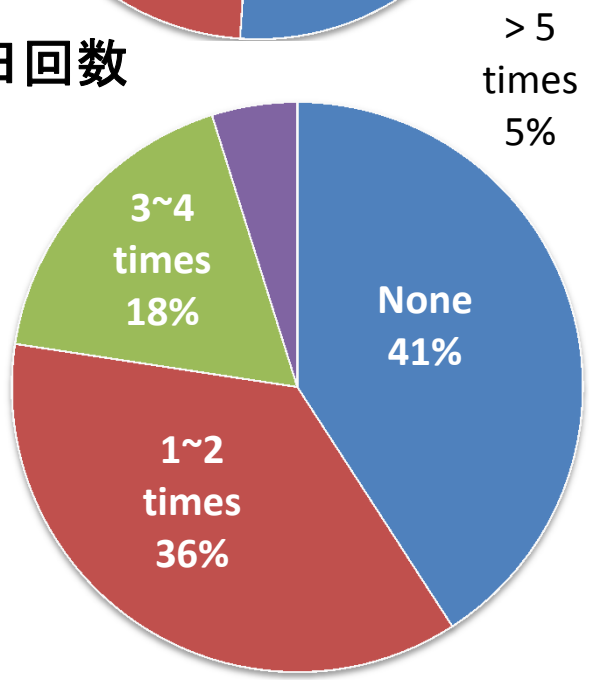


訪日回数



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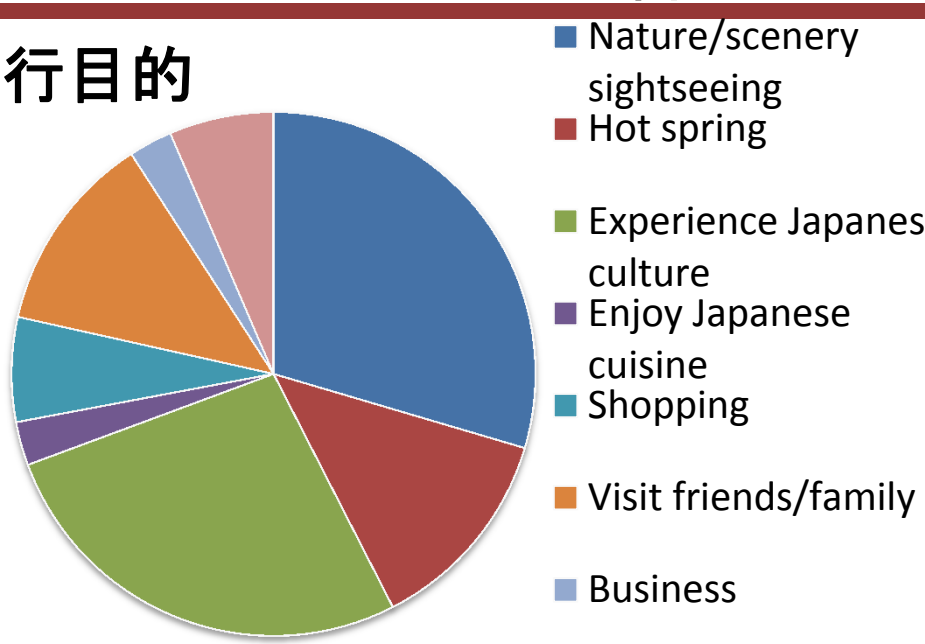
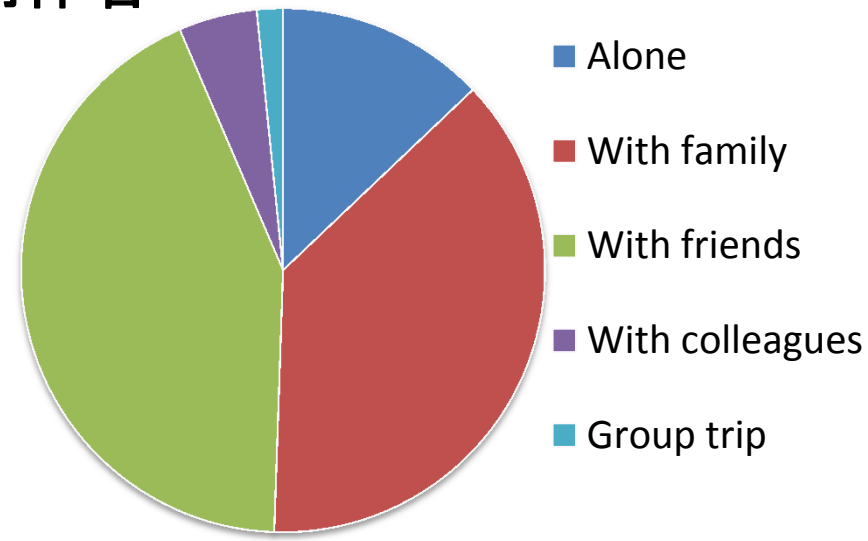
震災前の旅行計画（韓国）

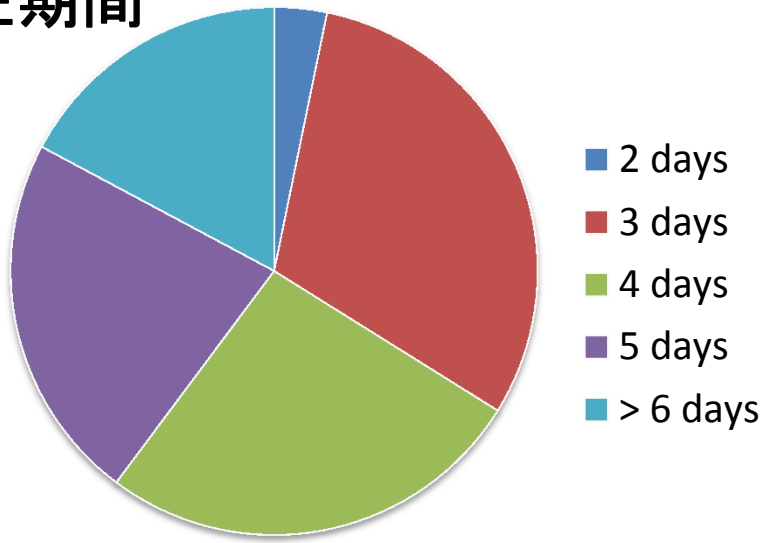
旅行目的



同伴者



滞在期間



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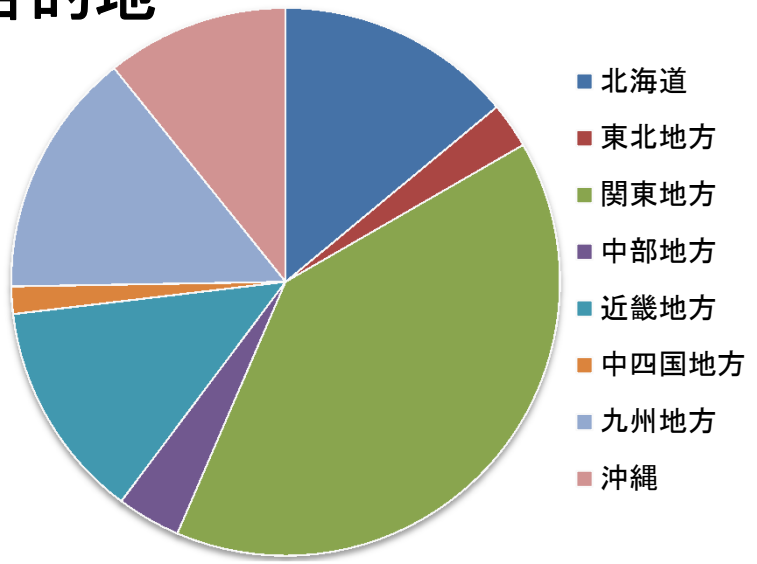

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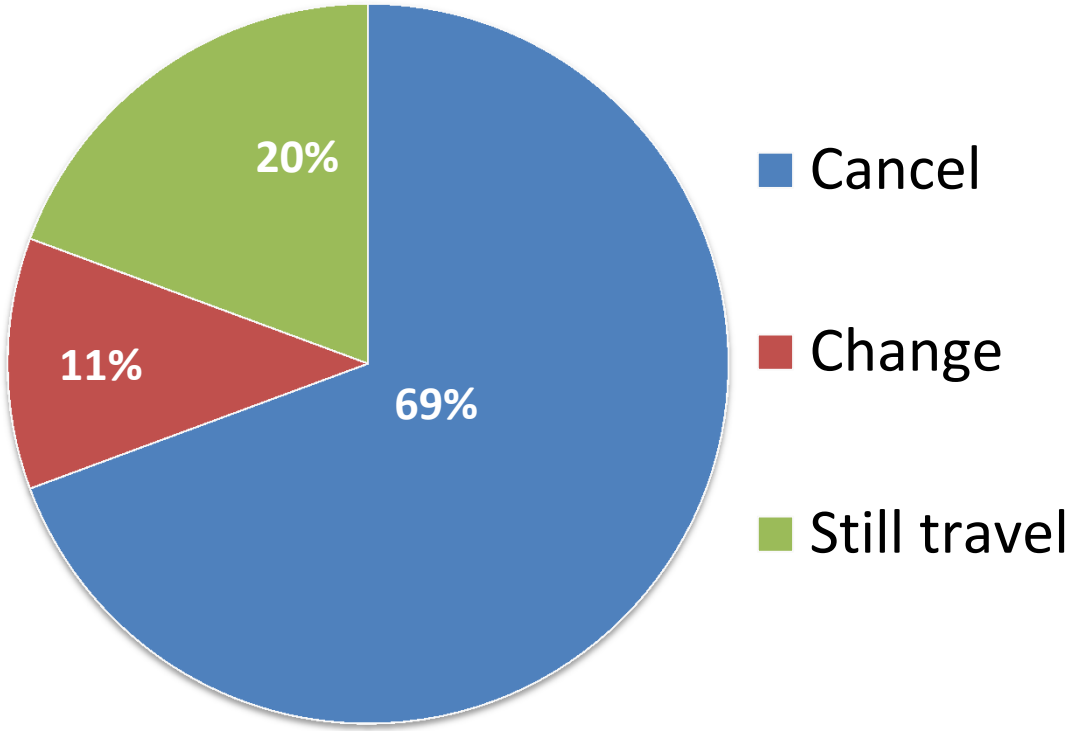
震災後の対応（韓国）



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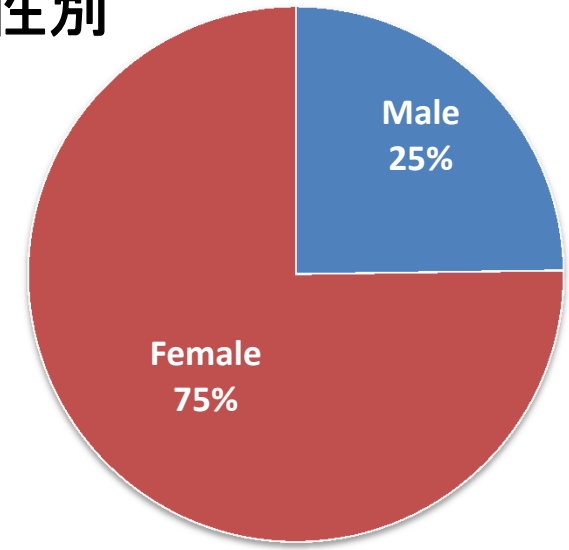
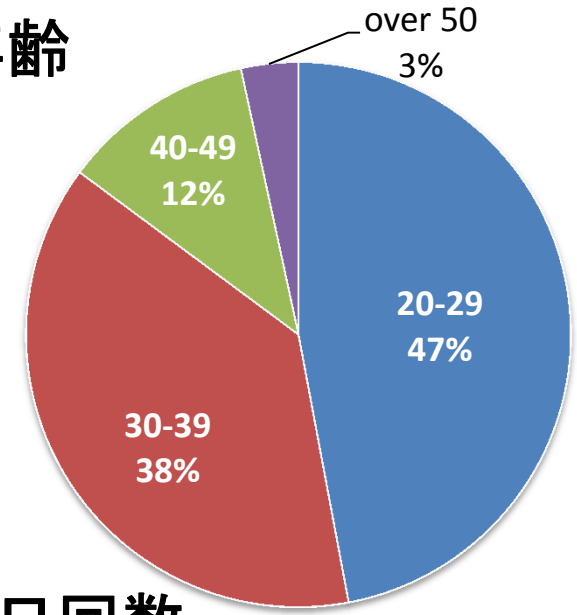
回答者属性（中国）

性別



年齢



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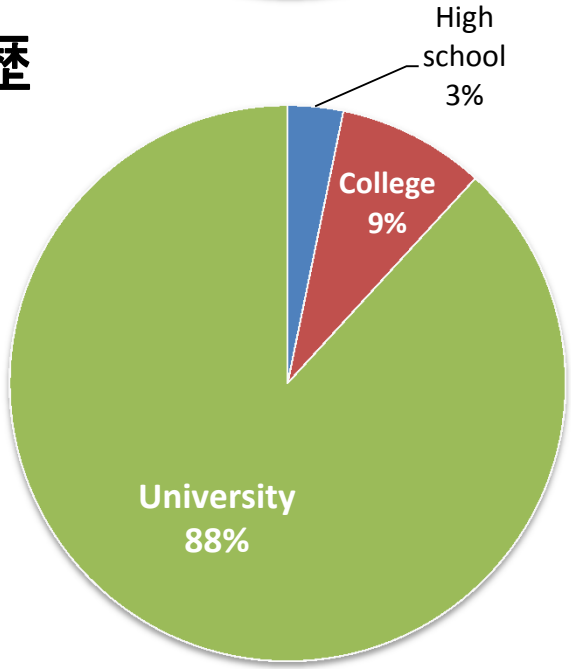
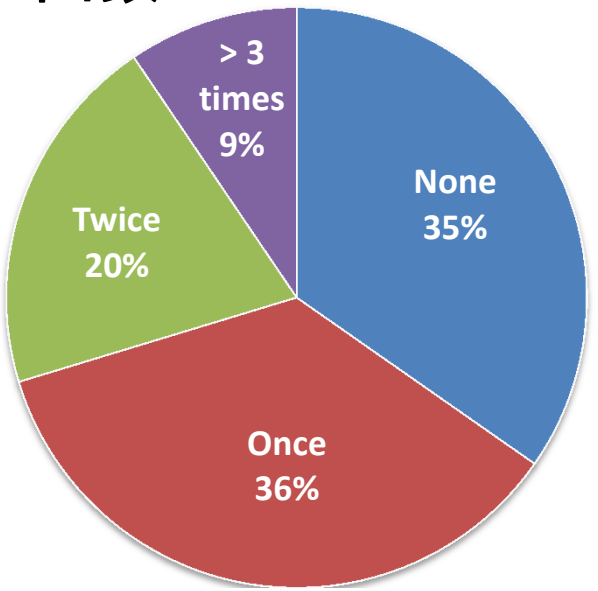


訪日回数



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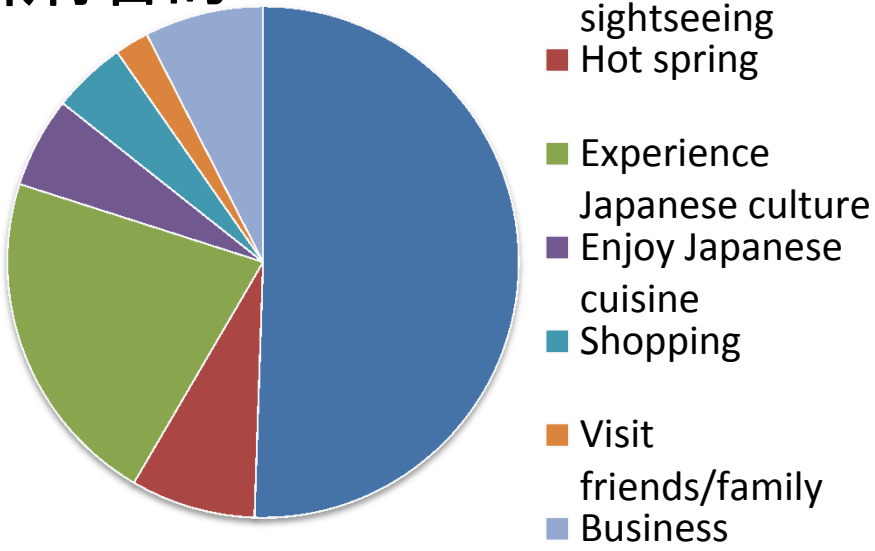
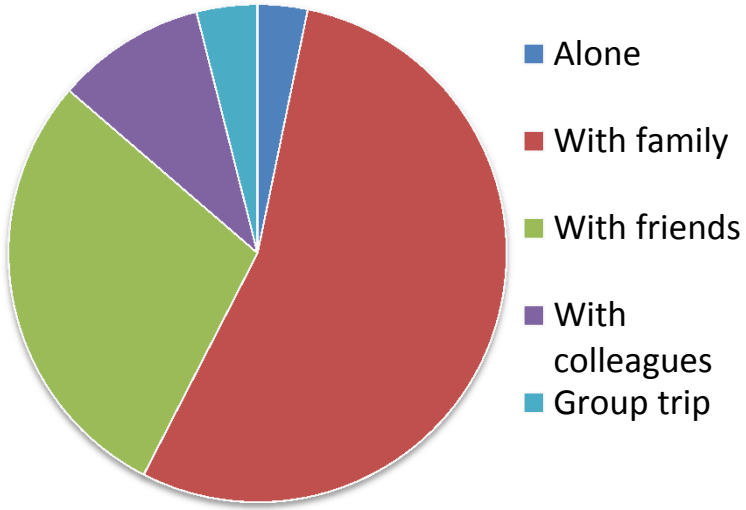
震災前の旅行計画（中国）

旅行目的



同伴者



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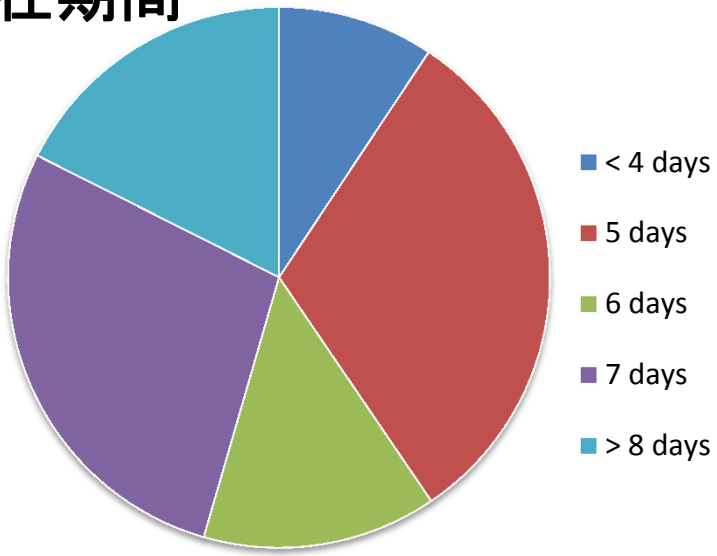

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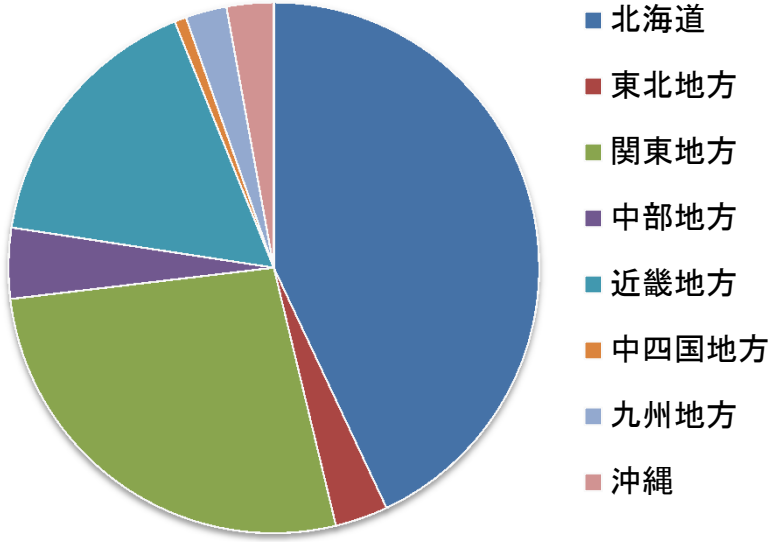

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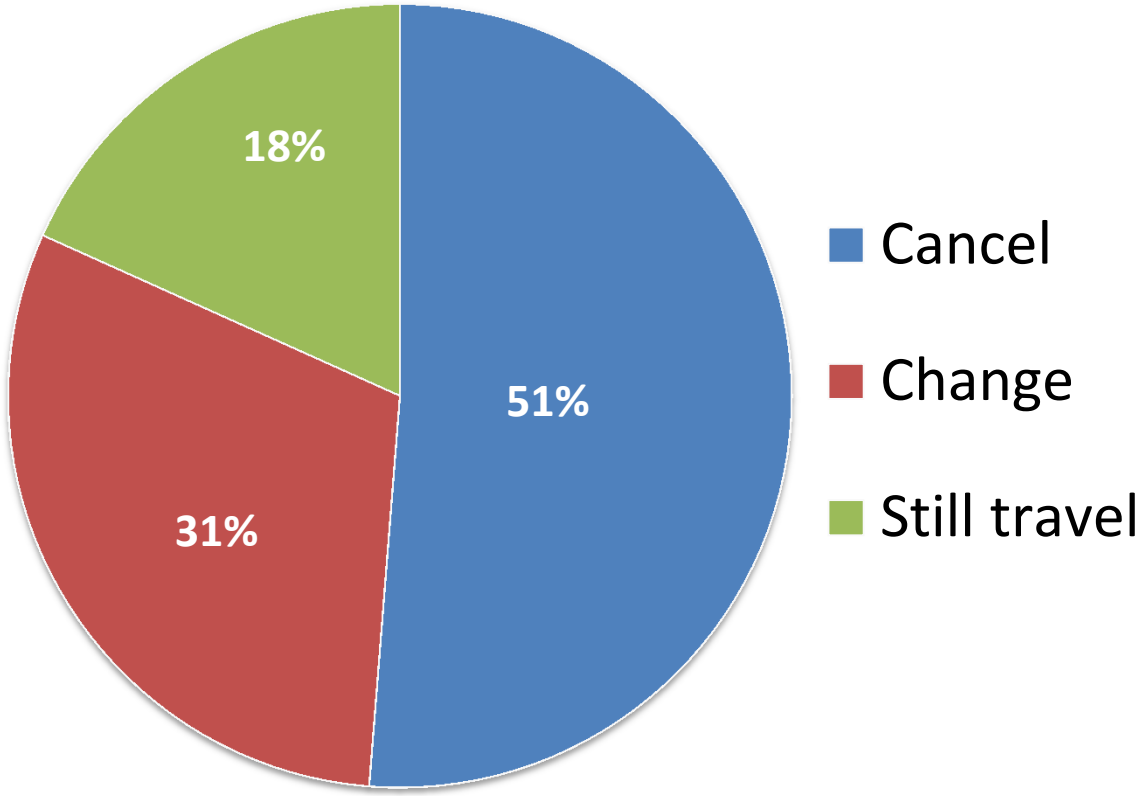
震災後の対応（中国）



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分析(1) 震災後の訪日有無の理由

「震災後に訪日しなかった理由」 主成分分析の結果（韓国＋中国）

	主成分負荷量	寄与率	Cronbach's α
Factor 1: Accessibility damage		28.9	0.88
The flight I planned to take was cancelled	0.88		
The group trip organized by my travel agency was cancelled	0.87		
Factor 2: Internal worry		23.2	0.82
I was worried about aftershock	0.73		
I was worried about the occurrence of natural disasters in Japan (e.g., earthquake, tsunami, typhoon, etc)	0.79		
I was worried about nuclear disaster	0.85		
I was worried about food being polluted by nuclear leakage	0.81		
Factor 3:External events		23.0	0.79
Appreciation of Japanese currency	0.79		
Increase of fuel tax	0.85		
Political conflict	0.74		
Total variance explained		75.1	

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分析(1) 震災後の訪日有無の理由

「震災後に訪日しなかった理由」の属性間の違い
①性別

Accessibility damage and external events are more important reasons for male tourists to cancel their trip; internal worry is more important reason for female.

	Accessibility damage	Internal worry	External events
Gender	F=11.3**	F=6.12**	F=5.76**
Male	2.08	3.47	2.35
Female	1.52	4.04	2.03

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分析(1) 震災後の訪日有無の理由

「震災後に訪日しなかった理由」の属性間の違い
②年齢

With age increase, the influences of accessibility damage and internal worry decrease, but influences of external events increase.

	Accessibility damage	Internal worry	External events
Age	F=7.98**	F=6.72**	F=10.76**
< 30 years old	2.09	4.18	1.85
30~40 years old	1.75	4.08	2.33
> 40 years old	1.41	3.79	2.58

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分析(1) 震災後の訪日有無の理由

「震災後に訪日しなかった理由」の属性間の違い
③国籍

By comparing with Korean tourists, tourists from China are more likely to cancel their trip because of accessibility damage and external events, but the influence of internal worry is lower for them.

	Accessibility damage	Internal worry	External events
Nationality	F=65.4**	F=6.5**	F=24.8**
China	2.11	3.77	2.33
South Korea	0.79	4.12	1.68

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分析(1) 震災後の訪日有無の理由

「震災後に訪日しなかった理由」の属性間の違い
④訪日回数

Repeat tourists are more likely to be influenced by accessibility damage and external events, while first time tourists are more likely to be influenced by internal worry.

	Accessibility damage	Internal worry	External events
Travel experience	F=15.4**	F=7.21**	F=3.92*
None	1.35	4.15	2.05
Once	2.14	3.72	2.08
More than Once	2.28	3.66	2.43

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分析(1) 震災後の訪日有無の理由

「震災後に訪日しなかった理由」の属性間の違い
⑤主な情報収集源

Tourists who use mass media as their major information source are more likely to be influenced by internal worry.

	Accessibility damage	Internal worry	External events
Information source	F=4.7**	F=9.41**	F=3.69*
Mass media	1.57	4.25	2.05
Otherwise	1.92	3.95	2.29

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分析(1) 震災後の訪日有無の理由

「震災後に訪日しなかった理由」の属性間の違い ⑥旅行目的

Accessibility damage has relatively higher influence on business trip;
Internal worry has lower influence on tourists with motivation of culture;
External events have larger influence on tourists with motivation of natural, culture, or shopping.

	Accessibility damage	Internal worry	External events
Motivation	F=7.27**	F=8.21**	F=2.37*
Natural	1.31	4.23	2.28
Culture	1.36	3.79	1.94
Shopping	1.58	4.27	2.01
VFR	1.21	4.36	1.71
Business	1.94	4.22	1.66

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分析(1) 震災後の訪日有無の理由

「震災後に訪日しなかった理由」の属性間の違い
⑦同伴者

Tourists who travel with family or friends are more likely to cancel their trip because of internal worry.

	Accessibility damage	Internal worry	External events
Travel party	F=0.91	F=4.28**	F=1.10
Alone	1.89	3.77	2.21
With family	1.97	4.07	2.21
With friends	1.91	4.05	1.99
Others	1.85	3.85	2.32

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分析(1) 震災後の訪日有無の理由

「震災後に訪日した理由」　主成分分析の結果（韓国＋中国）

	主成分負荷量	寄与率	Cronbach's α
Factor 1:Accessibility improvement		26.7	0.89
The travel package provided by my travel agent was cheaper than before	0.85		
Flights became cheaper than before the earthquake	0.89		
A direct flight from my residential area to Japan became available	0.64		
Low cost carriers from my residential area to Japan became available	0.72		
It became easier to get a tourism visa	0.68		
Factor 2:Information communication		22.9	0.86
Advertisement on TV, newspaper, magazine.	0.71		
Recommendation from my friend who has traveled to Japan	0.85		
Recommendation on Social networking service (Facebook, Twitter, etc)	0.86		
I watched a drama which is shot in Japan, and I want to experience by myself.	0.75		
The media lessened my concerns regarding nuclear leakage	0.68		

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分析(1) 震災後の訪日有無の理由

「震災後に訪日した理由」 主成分分析の結果（韓国＋中国） 続き

	主成分負荷量	寄与率	Cronbach's α
Factor 3:Internal willingness		22.3	0.92
I would like to witness how things have changed after the earthquake	0.69		
I would like to help the Japanese tourism industry to recover	0.84		
I feel sorry for the Japanese people affected by the disaster	0.79		
I believed I could offer some assistance	0.86		
I would feel guilty if I didn't do anything to help the tourism industry in Japan	0.86		
Total variance explained		71.9	

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分析(1) 震災後の訪日有無の理由

「震災後に訪日した理由」の属性間の違い
①性別

Information communication is more effective to promote female tourists to visit Japan;
Male tourists are more likely to travel to Japan out of internal willingness

	Accessibility improvement	Information communication	Internal willingness
Gender	F=1.02	F=8.08**	F=5.29**
Male	2.94	3.09	2.41
Female	2.81	3.35	2.03

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分析(1) 震災後の訪日有無の理由

「震災後に訪日した理由」の属性間の違い
②年齢

Information communication is more effective to promote younger tourists to visit Japan;
Elderly tourists are more likely to travel to Japan out of internal willingness

	Accessibility improvement	Information communication	Internal willingness
Age	F=0.21	F=8.34**	F=4.08**
< 30 years old	2.83	3.29	2.12
30~40 years old	2.89	3.09	2.18
> 40 years old	2.82	2.94	2.33

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分析(1) 震災後の訪日有無の理由

「震災後に訪日した理由」の属性間の違い
③国籍

Information communication is more effective to promote Chinese tourists to visit Japan;
Chinese tourists are more likely to travel to Japan out of internal willingness

	Accessibility improvement	Information communication	Internal willingness
Nationality	F=0.82	F=31.4**	F=2.86*
China	2.87	3.11	2.21
South Korea	2.63	1.81	1.72

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分析(1) 震災後の訪日有無の理由

「震災後に訪日した理由」の属性間の違い
④訪日回数

Accessibility improvement is more effective to promote repeat tourists to visit Japan;
Information communication is more effective to promote first-time tourists to visit Japan;
Repeat tourists are more likely to travel to Japan out of internal willingness

	Accessibility improvement	Information communication	Internal willingness
Travel experience	F=2.79*	F=4.31**	F=6.14**
None	2.68	3.19	1.71
Once	2.74	2.96	1.93
More than Once	3.12	2.74	2.43

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分析(1) 震災後の訪日有無の理由

「震災後に訪日した理由」の属性間の違い
⑤旅行目的

Tourists with motivation of natural and culture are more likely to be promoted by information communication;
Tourists with motivation of natural, culture or business are more likely to be promoted by their internal willingness

	Accessibility improvement	Information communication	Internal willingness
Motivation	F=0.68	F=2.91**	F=5.71**
Natural	2.95	3.11	2.26
Culture	2.79	3.11	2.11
Shopping	2.78	2.78	1.41
VFR	2.62	2.55	1.71
Business	2.62	2.45	2.36

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分析(1) 震災後の訪日有無の理由

「震災後に訪日した理由」の属性間の違い
（6）同伴者

The influence of information communication is highest among tourists who travel with family

	Accessibility improvement	Information communication	Internal willingness
Travel party	F=1.52	F=3.09**	F=0.49
Alone	2.76	2.41	2.11
With family	2.89	3.07	2.23
With friends	2.54	2.76	1.96
Others	2.85	2.39	2.17

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分析(2) 震災後の旅行者の選択行動

分析方法（多項ロジットモデル）

In this study, tourists' post-disaster decision is analyzed by using the multinomial logit (MNL) model.

＜選択肢＞

ⅰ）キャンセル（cancel the travel plan）
ⅱ）変更　　(change the travel plan)
ⅲ）予定通り（still travel as planed）

The probability that individual *n* choose alternative *j* can be represented as:

$$P_{nj} = \frac{\exp V_{nj}}{\sum_{j'} \exp V_{nj'}} \qquad (1)$$

Where V_{nj} represents the observable components of the utility function of alternative *j*, which is specified as:

$$V_{nj} = \alpha_j + \sum_h \beta_{hj} X_{hj} \qquad (2)$$

where, α_j is constant term for alternative *j*; X_{hj} is the *h* th attribute describing alternative *j*.

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分析(2) 震災後の旅行者の選択行動

説明変数	説明
性別	1: Male; 0: Female
年齢	Actual age
収入	Annual household income
学歴	1: having a university degree; 0: otherwise
訪日回数	Travel times to Japan in the last 5 years
震災と旅行の間隔	Time interval between the occurrence of earthquake and planned trip
旅行目的	1: Tourism; 0: Business
同伴者	1: Alone; 0: Otherwise
リスク認知1	The majority of Japan was directly affected by the earthquake
リスク認知2	After the earthquake, Japan was inaccessible
リスク認知3	Most of the affected area was not open for business after the earthquake
リスク認知4	Most of the tourism attractions in the affected area were inaccessible
リスク認知5	It was not safe to travel to Japan because of the aftershock
リスク認知6	It was not safe to travel to Japan because of the nuclear leakage
リスク認知7	Food in Japan has been polluted by nuclear leakage

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分析(2) 震災後の旅行者の選択行動

説明変数	中国		韓国	
	Cancel	Change	Cancel	Change
性別	0.31	-0.09	-0.92	-1.31
年齢	0.21	-0.22	0.38	0.49
収入	-0.04 *	-0.04	0.26	-0.11
学歴	0.04	0.32	-1.61 *	-1.38
訪日回数	-1.08 **	0.06	-1.05 **	0.01
震災と旅行の間隔	-0.31 **	-0.24 *	-0.51	-0.37
旅行目的	1.89 **	1.26 *	1.82	1.33
同伴者	-0.42	-0.84	-0.14	-2.24
リスク認知1	0.35 **	0.45 **	0.85 **	0.49
リスク認知2	0.08	0.21	1.09 **	0.81 *
リスク認知3	0.06	0.12	0.03	0.12
リスク認知4	0.02	-0.01	-0.24	0.01
リスク認知5	0.58 **	0.28 *	1.07 **	0.55
リスク認知6	0.04	0.05	0.14 **	-0.35
リスク認知7	0.40 **	0.19	0.22 **	0.44
Initial log-likelihood	-586.7		-204.3	
Converged log-likelihood	-393.3		-83.4	
McFadden's Rho-squared	0.32		0.59	

* significant at the 10% level, ** significant at the 5% level

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まとめ

韓国・中国の旅行者の「震災後に訪日した/しなかった理由」を分析
The study analyzes the reasons why international tourists would/would not travel to Japan following the earthquake.

「震災後に訪日しなかった理由」
Principal component analysis identified three factors in the reasons why international tourists would not travel to Japan following the earthquake, which can be labeled as “accessibility damage”, “internal worry”, and “external events”.

「震災後に訪日した理由」
Principal component analysis identified three factors in the reasons why international tourists would travel to Japan following the earthquake, which can be labeled as “accessibility improvement”, “information communication”, and “internal willingness”.

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まとめ

A one-way analysis of variance (ANOVA) is conducted to determine whether these reasons are different across tourists with different characteristics. Significant differences are found between different groups.

	Accessibility damage		Internal worry		External events	
性別	男性 ⬆	女性	男性	女性 ⬆	男性⬆	女性
年齢	若年 ⬆	高齢	若年 ⬆	高齢	若年	高齢 ⬆
国籍	中国 ⬆	韓国	中国	韓国 ⬆	中国⬆	韓国
訪日回数	初訪日	リピーター⬆	初訪日⬆	リピーター	初訪日	リピーター⬆
主な情報収集源	マスメディア	以外 ⬆	マスメディア⬆	以外	マスメディア	以外 ⬆
旅行目的	ビジネス⬆	以外	文化観光⬇	以外	自然観光 ⬆	以外
同伴者			家族・友人 ⬆	以外		

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まとめ

	Accessibility improvement		Information communication		Internal willingness	
性別			男性	女性 ⬆	男性 ⬆	女性
年齢			若年 ⬆	高齢	若年	高齢 ⬆
国籍			中国 ⬆	韓国	中国 ⬆	韓国
訪日回数	初訪日	リピーター⬆	初訪日⬆	リピーター	初訪日	リピーター⬆
旅行目的			自然・文化観光⬆	以外	自然観光⬆	以外
同伴者			家族同伴⬆	以外		

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まとめ

震災後の旅行者の対応行動を多項ロジットモデルで分析
International tourists' behavior response after the earthquake is analyzed by using MNL model.

対応行動の要因を明らかにした
The model estimation results suggest that income, post travel experience, time interval, travel purpose, and three elements of risk perception have significant influence on decision of tourists from China. While the most influential factors for tourists from South Korea include education level, post travel experience, and five elements of risk perception.

【対応行動の要因】
中国人
収入、訪日回数、震災と旅行の間隔、旅行目的、リスク認知

韓国人
学歴、訪日回数、リスク認知

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政策的示唆

日本の観光産業の復興のためには、震災後の訪日を促進／阻害する要因を理解することが必要

A better understanding of the reasons that prohibit or promote international tourists to visit Japan after the earthquake could provide implication for the recovery of tourism industry in Japan.

観光産業が各国の市場に対して効果的なマーケティングを行うためには、旅行者のセグメントごとの違いを理解することが重要

The analysis of difference in the different segmentation could provide important information for tourism industry to carry out effective marketing strategies towards each target market.

震災後の旅行者の対応行動を分析することは、災害による観光市場の変化を政府が予測することに役立つ

The analysis of tourists' response behavior to the earthquake can help government to predict the changes in tourism market that would occur due to the disaster.

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	Accessibility damage		Internal worry		External events	
性別	男性 ⬆	女性	男性	女性 ⬆	男性⬆	女性
年齢	若年 ⬆	高齢	若年 ⬆	高齢	若年	高齢 ⬆
国籍	中国 ⬆	韓国	中国	韓国 ⬆	中国⬆	韓国
訪日回数	初訪日	リピーター⬆	初訪日⬆	リピーター	初訪日	リピーター⬆
主な情報収集源	マスメディア	以外 ⬆	マスメディア⬆	以外	マスメディア	以外 ⬆
旅行目的	ビジネス⬆	以外	文化観光⬇	以外	自然観光 ⬆	以外
同伴者			家族・友人 ⬆	以外		

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Thank you for your attention!

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