東日本大震災後のインバウンド観光に関する研究

An analysis of post-disaster inbound tourism in Japan
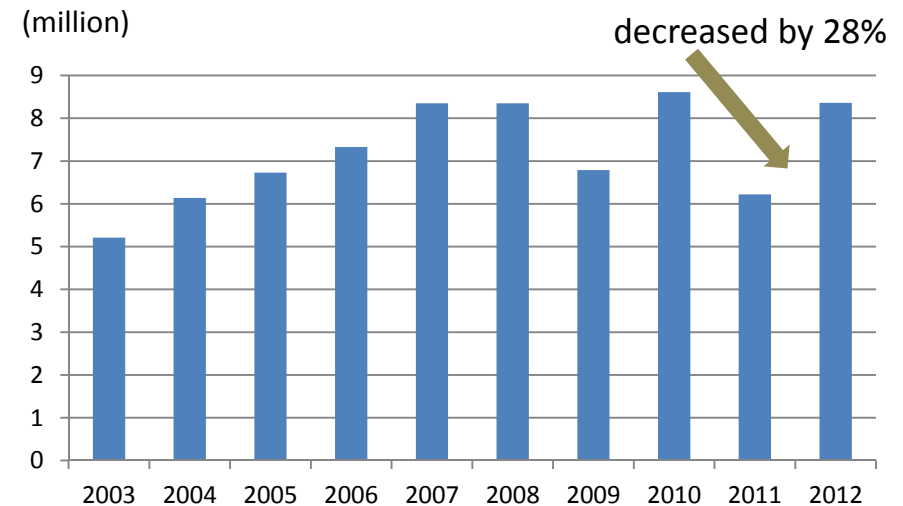
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研究の背景

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

(million)

decreased by 28%

研究の背景

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

研究の目的
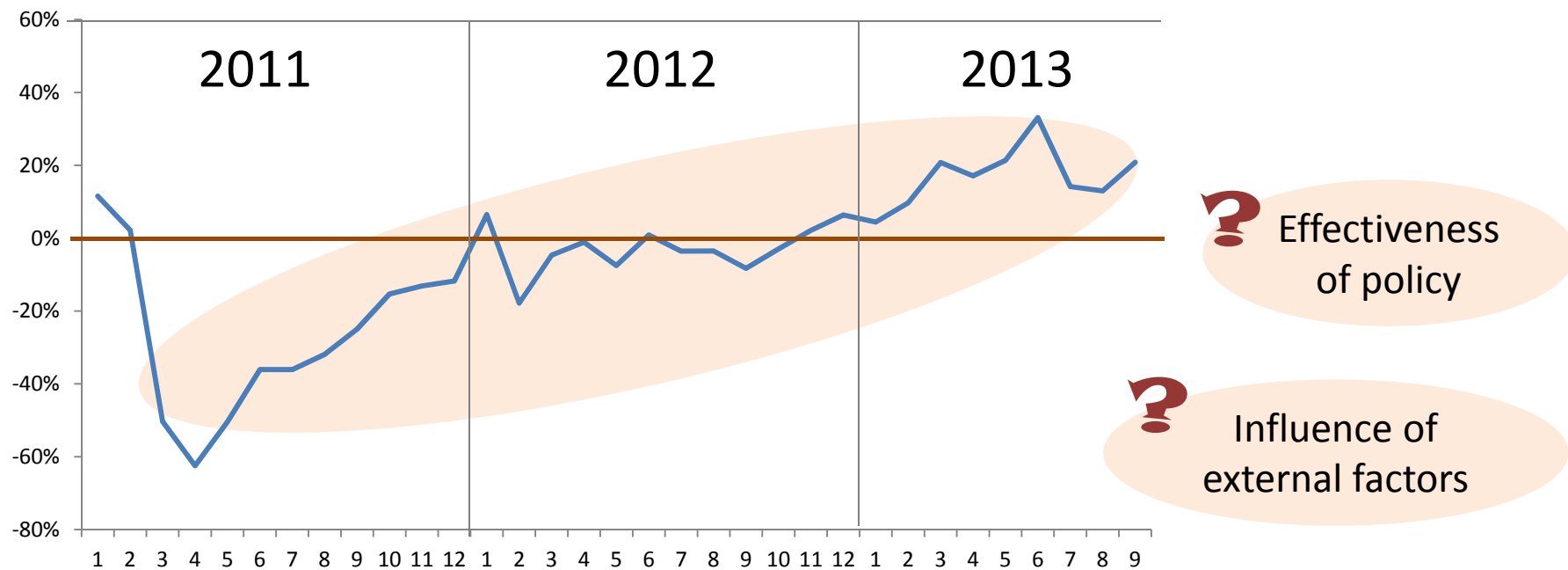
- ☑ 東日本大震災によるインバウンド観光の変化を明らかにする
- ☑ 国ごとの訪日外国人旅行者数の回復の違いを明らかにする
- ☐ 震災に対する旅行者の行動のメカニズムを分析し、旅行者数増加のために実施されている政策の効果を明らかにする
- ☐ 観光産業が災害をどう乗り切るのかについて提案を行う

先行研究のレビュー

Supply side	Demand side
(1) 自然災害の観光産業への影響に関する研究	(4) 災害後の観光需要のモデリングに関する研究
(2) 自然災害のリスクアセスメントに関する研究	(5) 自然災害に対する旅行者の行動に関する分析
(3) 災害後の観光産業復興のための戦略に関する研究	

(1)自然災害の観光産業への影響に関する研究

Various approaches have been proposed to assess the impact of natural disasters on tourism industry in different aspects.

● Mazzocchi, M., and Montini, A. (2001). Earthquake effects on tourism in central Italy. *Annals of Tourism Research*, 28, 1031-1046.
This paper employed an approach that is frequently applied in finance to assess the economic impact of earthquake on tourism industry in Italy.

● Wang, Y. (2009). The impact of crisis events and macroeconomic activity on Taiwan's international inbound tourism demand. Tourism Management, 30, 75-82.
This paper examined the impact of four major disasters happened between 1996 to 2006 on the inbound tourism demand in Taiwan. This paper finds that any impact on safety negatively affects tourism demand. The impact of financial crises on tourism demand is less significant.

先行研究のレビュー（Supply side）

(2)自然災害のリスクアセスメントに関する研究

Disaster assessment models have been developed to analyze disaster vulnerability and risk weakness of tourism industry.

●Tsai, C., and Chen, C. (2011). The establishment of a rapid natural disaster risk assessment model for the tourism industry. *Tourism Management*, 32, 158-171.
This study explores various theories related to risk analysis of different natural disasters and establishes a risk assessment model that can be used to analyze disaster vulnerability of tourism industry in local regions.

●Sausmarez, N. (2009). Crisis management, tourism and sustainability: the role of indicators. *Journal of Sustainable Tourism*, 15, 700-714.
This study gathered empirical data during interviews with public and private sector representatives to identify appropriate crisis indicators in tourism development.

先行研究のレビュー（Supply side）

(3)災害後の観光産業復興のための戦略に関する研究

Principles of effective disaster management for tourism industry have been discussed and disaster management framework for tourism industry has been built.

●Zhang, H., Li. M., and Xiao, H. (2009). Tourism recovery strategies and their implications: a multiple case study approach. Journal of China Tourism Research, 5, 273-286.
The paper adopts a multiple case study approach to conduct a comprehensive review of post-disaster reconstruction experiences from Australia, Turkey, Taiwan, and China. Based on analysis of the case study, six common post-disaster recovery measures are identified.

●Ritchie, B. (2004). Chaos, crises and disasters: a strategic approach to crisis management in the tourism industry. *Tourism Management*, 25, 669-683.
The paper argued that the crisis management for the tourism industry can be improved through the extension and application of crisis and disaster management theory and concepts from other disciplines, coupled with the development of specific tourism crisis management research.

先行研究のレビュー（Demand side）

(4)災害後の観光需要のモデリングに関する研究

Different models have been established to predict tourism demand after the occurrence of natural disasters.

● Huang, J., and Min, J. (2002). Earthquake devastation and recovery in tourism: the Taiwan case. *Tourism management*, 23, 145-154.
This research establishes a model to predict Taiwan's inbound demand after September 21st Earthquake and to evaluate whether Taiwan tourism has rebounded completely from the crisis.

●Prideaux, B., Laws, E., and Faulkner, B. (2003). Events in Indonesia: exploring the limits to formal tourism trends forecasting methods in complex crisis situations. *Tourism management*, 24, 475-487.
The paper argued that current tourism demand models are not able to cope with unexpected disasters. The paper outlined a framework for classifying disasters according to a scale of severity, probability, type of event, level of certainty and suggested forecasting tools for each type of disasters.

(5)自然災害に対する旅行者の行動に関する分析

The impact of perceived risk of natural disaster on tourists' travel intention has been investigated.

●Kozak, M., Crotts, J., and Law, R. (2007). The impact of the perception of risk on international travelers. *International Journal of Tourism Research*, 9, 233-242.
This paper investigated the impact of perceived risk on the tendency to travel internationally. The findings suggest that international tourists appear to be sensitive towards the occurrence of any type of risk in their evoked destinations.

●Park, K., and Reisinger, Y. (2010). Differences in the perceived influence of natural disasters and travel risk on international travel. Tourism Geographies, 12, 1-24.
This study explores the socio-demographic and economic differences in the perceived influences of natural disasters and travel risk on international travel.

先行研究のレビュー（まとめ）

先行研究の課題

Although a large number of studies have been conducted concerning disaster management in tourism research field. The research related to the demand side is limited to a few studies.

The existing study about post-disaster tourism demand modeling failed to incorporate the influence of external factors on the tourism demand.

Limited effort has been made for a systematic understanding of tourists' post-disaster behavior process and its implication for the disaster recovery of tourism industry.

本研究の特徴

This research will investigate the recovery process of different markets and clarify the influence of various factors on the recovery process of each market.

This research will establish a model system to represent tourists' behavior mechanism under occurrence of natural disaster.

分析結果

☐ **震災後のインバウンド観光需要の変化**

☐ 各国に対する政策の整理

☐ 国別にみた旅行者数の回復要因

震災後のインバウンド観光需要の変化
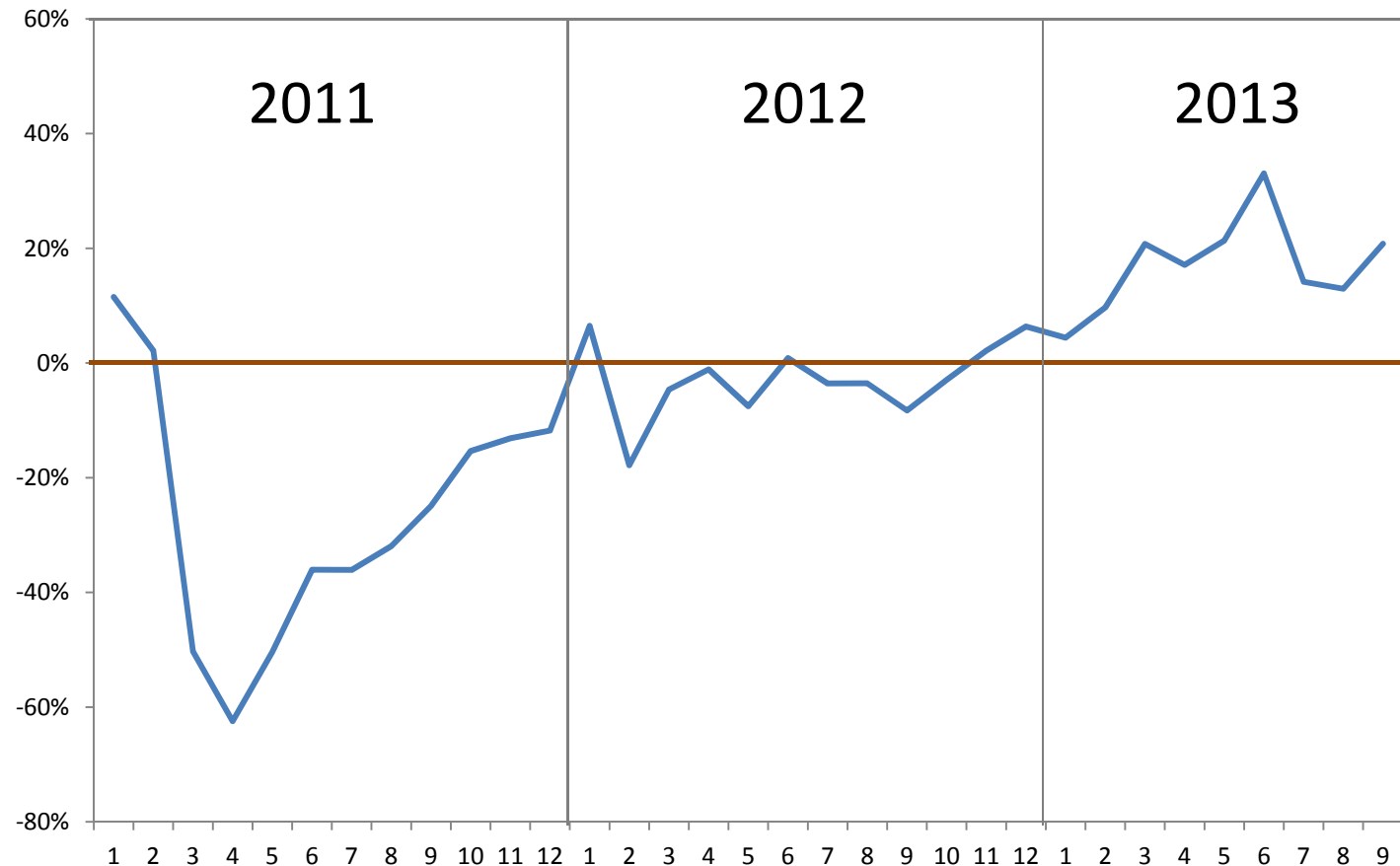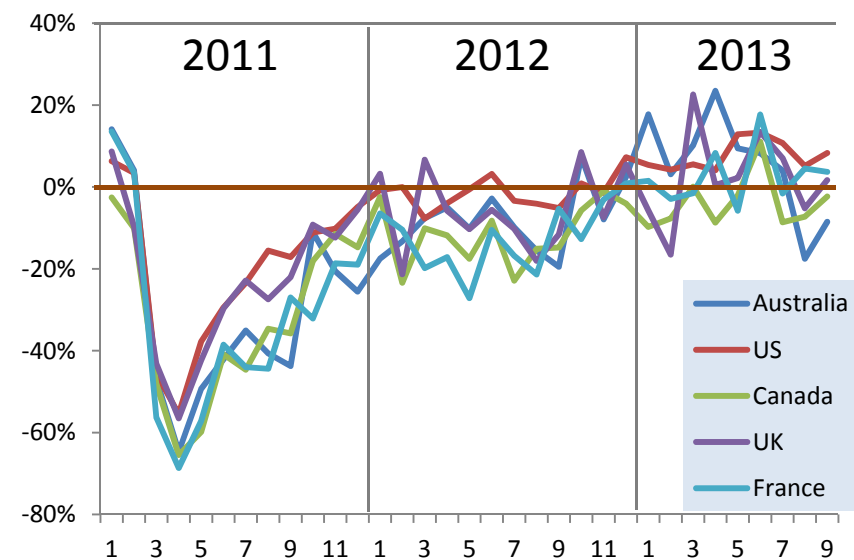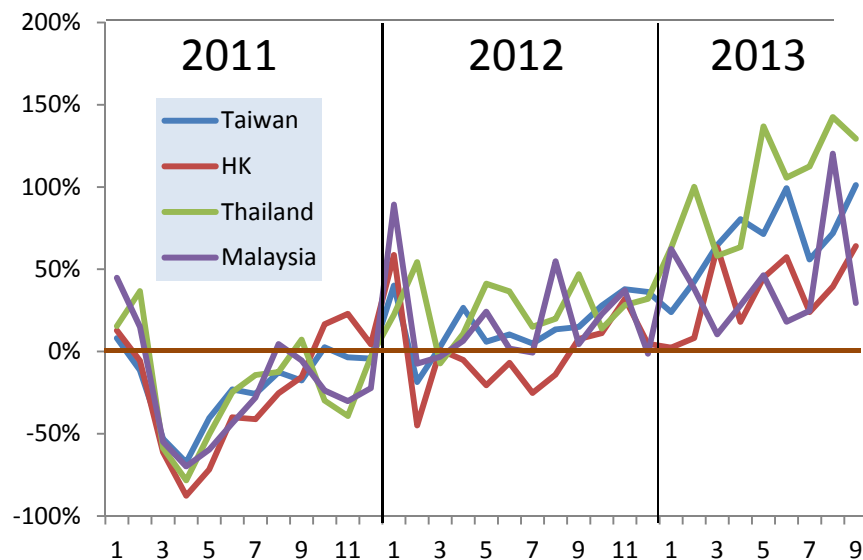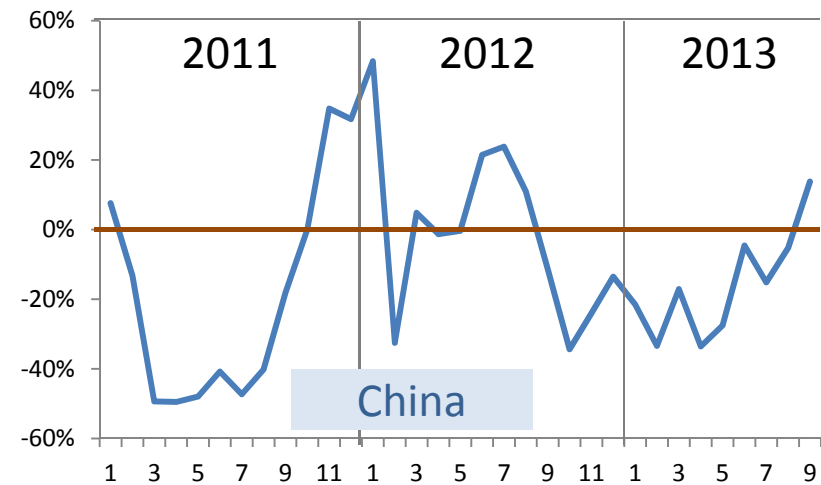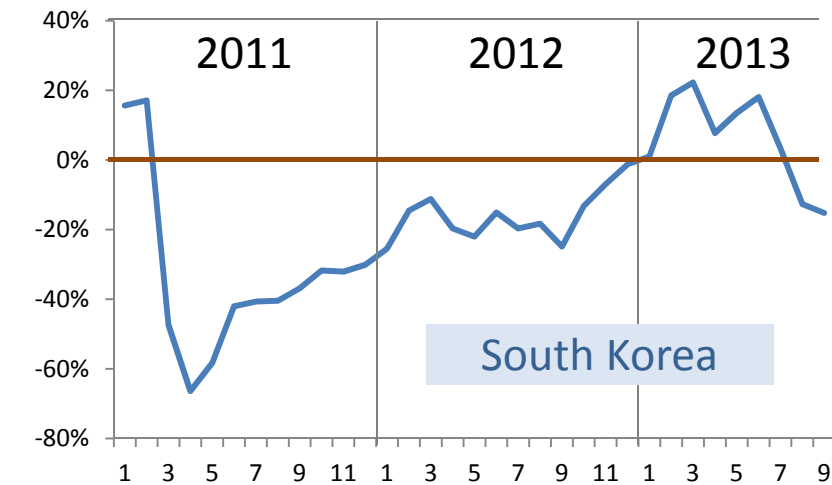

Change rate by comparing with inbound tourism demand in 2010

震災後のインバウンド観光需要の変化（国別）

Change rate by comparing with inbound tourism demand in 2010

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分析結果

☐ 震災後のインバウンド観光需要の変化
◼ 各国に対する政策の整理
☐ 国別にみた旅行者数の回復要因

各国に対する政策の整理

2011-03~	Information communication
	Provide information to foreigners on JNTO homepage; Set 24/7 hotline to foreigners; Provide accurate information through mass media oversea; Invite famous people in other counties to visit Japan and post their message on JNTO homepage;
2011-05~	Corporate with foreign media and travel agent (B to B)
	Invite foreign media to visit Japan and provide accurate broadcast on mass media oversea; Invite foreign travel agents to visit Japan and ask them to resume travel package to Japan; Design new travel package to Japan with foreign travel agents; Advertise traveling in Japan through foreign travel agents.
2011-10~	Appeal to international tourists (B to C)
	Utilize word-of-mouth information on SNS to promote international tourists to visit Japan; Design advertisement according to consumers' needs in different markets; Promotion through various campaigns.

各国に対する政策の整理

South Korea	Provide accurate information against harmful rumors through influential media and bloggers; Promote package tour at half price after the earthquake; Propose weekend tour products to female tourists.
China	Provide accurate information against harmful rumors through influential media and bloggers; Promote package tour at half price after the earthquake; Promote self-organized tour through new visa policy.
Taiwan Hong Kong	Propose new tourism content such as driving, railroads and cycling, and new destination such as Kyushu through web pages and Facebook, to expand repeat visitors.
Thailand Malaysia	Support the sales of tourism products targeting middle- and high-income populations; Implementation of new visa policy to issue multiple-time tourism visa to Thai and Malaysian.
Australia US, Canada UK, France	Provide information on special aspects of Japanese culture that appeals to high-income populations; Joint advertisements with travel agencies.

分析結果

- ☐ 震災後のインバウンド観光需要の変化
- ☐ 各国に対する政策の整理
- ☐ **国別にみた旅行者数の回復要因**

国別にみた旅行者数の回復要因

	South Korea	China	Taiwan Hong Kong	Thailand Malaysia	Australia, US, Canada UK, France
Economic growth	Unstable economic growth	Economic growth		Economic growth	Financial crisis in Europe
Exchange rate	Appreciation of Japanese Yen				
Transport cost		Introduction of LCC	Introduction of LCC		Increase of fuel surcharge
Accessibility	Geographical vicinity				Increase of number of flight to Japan
Political conflict	Political conflict	Political conflict			

インバウンド観光需要（訪日旅行者数）のモデル化

In order to clarify the influence of different factors, a time series model is used to analyze the monthly tourist arrivals from different countries. Tourist arrivals to Japan from country i in month t can be represented as:

$$Arrival_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 Exchange\ rate_{it} + \beta_3 price_{it} + \beta_4 Transport\ cost_{it}$$
$$+ \beta_5 Earthquake_t + \beta_6 Visa_{it} + \beta_7 Political\ conflict_{it}$$
$$+ \beta_y\ year\ dummies + \beta_m month\ dummies + \varepsilon_{it}$$

インバウンド観光需要（訪日旅行者数）モデルの説明変数

説明変数	内容
GDP_{it}	GDP per capita of country i
$Exchange\ rate_{it}$	Exchange rate of currency in country i against Yen
$Price_{it}$	Use CPI as a proxy: $CPI_{Japan} / CPI_{country\ i}$
$Transport\ cost_{it}$	Transport cost (use international oil price as a proxy)
$Earthquake_t$	Influence of earthquake in month t : $1/\Delta t_{earthquake}$
$Visa_{it}$	A dummy variable with a value 1 if new visa policy is implemented for country i at the time t, is 0 otherwise
$Political\ conflict_{it}$	A dummy variable with a value 1 if there is political conflict between country i and Japan, is 0 otherwise
year dummies	Dummy variables representing a certain year
month dummies	Dummy variables representing a certain month

国別にみた旅行者数の回復要因

インバウンド観光需要（訪日旅行者数）モデル

使用データ

Variables	Data source
Tourist arrival	Monthly tourist arrival to Japan from different countries published by JNTO (2003~2013)
GDP *Exchange rate* *CPI* *Oil price*	IMF′s International Financial Statistics (IFS) database

国別にみた旅行者数の回復要因

インバウンド観光需要（訪日旅行者数）モデル

パラメータ推定結果　（韓国・中国・台湾・香港・タイ・マレーシア）

Explanatory variables	South Korea	China	Taiwan	Hong Kong	Thailand	Malaysia
GDP_{it}	1.01 **	2.82 **	2.69 **	0.47 **	0.33 **	0.04
$Exchange\ rate_{it}$	1.75 **	0.05	1.58	0.21 *	0.97 **	0.01
$Price_{it}$	2.06	-3.97	-1.71 **	-6.01 **	-2.34 **	-0.58 **
$Transport\ cost_{it}$	-0.03 *	-0.02 *	0.01	0.05	-0.01	0.01
$Earthquake_t$	-11.3 **	-5.54 **	-6.83 **	-3.44 **	-1.91 **	-0.72 **
$Visa_{it}$	--	0.21	--	--	0.15	0.11 **
$Political\ conflict_{it}$	-0.64	-6.56 **	--	--	--	--
$Adjusted\ R\text{-}Square$	0.85	0.79	0.78	0.71	0.84	0.79

* significant at the 90% level, ** significant at the 95% level

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国別にみた旅行者数の回復要因

インバウンド観光需要（訪日旅行者数）モデル

パラメータ推定結果 （オーストラリア・アメリカ・カナダ・イギリス・フランス）

Explanatory variables	Australia	US	Canada	UK	France
GDP_{it}	0.03 **	0.21 **	0.01	0.01	0.04 **
$Exchange\ rate_{it}$	0.01	0.01	0.41	0.08	0.01
$Price_{it}$	-0.82 *	-3.84 **	-0.16 *	-0.03	-0.11 *
$Transport\ cost_{it}$	0.04	-0.66 *	-0.01	0.06	0.01
$Earthquake_t$	-1.12 **	-3.78 **	-0.67 **	-1.00	-0.75
$Visa_{it}$	--	--	--	--	--
$Political\ conflict_{it}$	--	--	--	--	--
$Adjusted\ R\text{-}Square$	0.75	0.88	0.75	0.84	0.82

* significant at the 90% level, ** significant at the 95% level

国別にみた旅行者数の回復要因

インバウンド観光需要（訪日旅行者数）モデル

説明変数の寄与率

凡例:
- Unobserved factors
- Month dummy
- Year dummy
- Political conflict
- Visa
- Earthquake
- Transport cost
- Exchange rate
- Price
- GDP

横軸: Korea, China, Taiwan, HK, Thailand, Malaysia, Australia, US, Canada, UK, France

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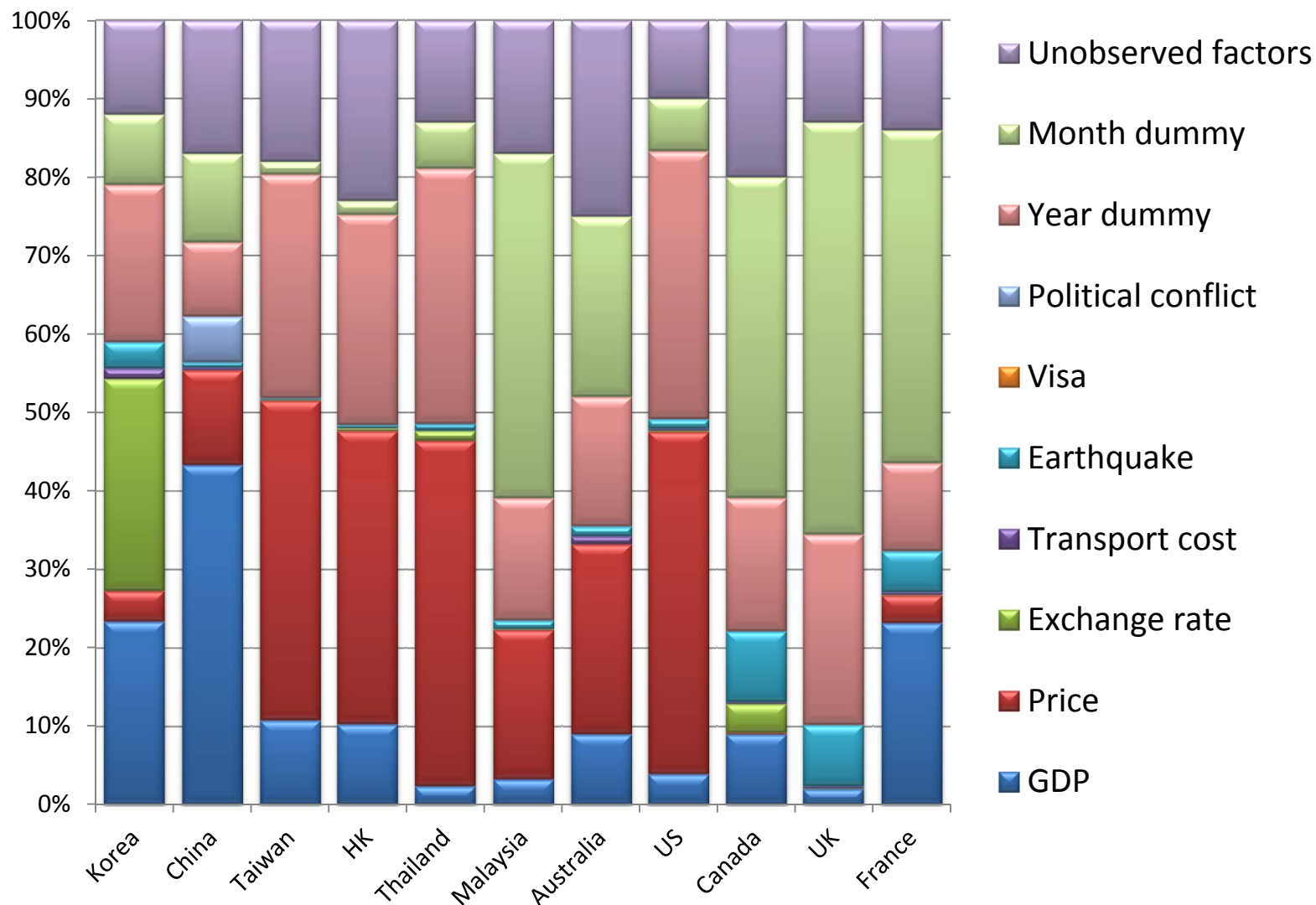
インバウンド観光需要（訪日旅行者数）モデル

分析結果の整理

The earthquake has relatively larger influence on tourist arrivals from South Korea, Canada, UK, and France.

For South Korea, the most influential factor is exchange rate.

For China, the most influential factor is GDP, which accounts for more than 40% of the total variance. It shows that inbound demand from China has a large potential to increase. However, political conflict is a major obstacle.

インバウンド観光需要（訪日旅行者数）モデル

分析結果の整理

The market of Taiwan, HK, Thailand, Australia and US are price sensitive, which implies that price incentive may serve as an effective measure to encourage them to visit Japan.

For Malaysia, Canada, UK and France, the month dummies account for the most variance. It may indicate that tourist arrivals from these countries have already formed certain patterns.

結論

The change of inbound tourism in Japan and recovery process of different markets after the Great East Japan Earthquake has been investigated. The results revealed different recovery patterns of different countries.

The factors that promote and hamper recovery process for different countries have been identified.

The influence of relevant policies have not been well investigated.

The data of inbound tourism demand used in current analysis include both tourism and business trip, further effort is necessary to analyze them separately.

今後の課題

Web-based questionnaire survey will be conducted in several major markets of inbound tourism in Japan for a comprehensive understanding on international tourists' behavior response to the earthquake, and their intention to visit Japan in the future.

Develop a model system to represent tourists' post-disaster behavior by extending the existing methodology.

Apply the developed model system to evaluate the effectiveness of tourism recovery policy after the Great East Japan Earthquake.

Thank you for your attention!