

Mitomo, Hitoshi; Otsuka, Tokio

Conference Paper

Perceived Value of Broadcasting: Normal vs. Restoration Stages from Earthquake Disasters

29th European Regional Conference of the International Telecommunications Society (ITS): "Towards a Digital Future: Turning Technology into Markets?", Trento, Italy, 1st - 4th August, 2018

Provided in Cooperation with:

International Telecommunications Society (ITS)

Suggested Citation: Mitomo, Hitoshi; Otsuka, Tokio (2018) : Perceived Value of Broadcasting: Normal vs. Restoration Stages from Earthquake Disasters, 29th European Regional Conference of the International Telecommunications Society (ITS): "Towards a Digital Future: Turning Technology into Markets?", Trento, Italy, 1st - 4th August, 2018, International Telecommunications Society (ITS), Calgary

This Version is available at:

<https://hdl.handle.net/10419/184956>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Perceived Value of Broadcasting: Normal vs. Restoration Stages from Earthquake Disasters

Hitoshi Mitomo Waseda University, Japan
Tokio Otsuka Shumei University, Japan

Keywords: local broadcasting, disaster restoration, earthquake, CVM, contingent valuation method, PSM, price sensitivity measurement, experimental design

1. Introduction

(1) Purpose

This paper aims to quantify the subjective evaluation of the value of local terrestrial broadcasting with special attention to the restoration phase of the two major earthquakes in Japan in order to address a question that how much value people place on local broadcasting in both normal times and post disaster situations. Japan experienced two level-7 earthquakes in the second decade of the twenty-first century: The Great East Japan Earthquake in 2011 and the Kumamoto Earthquake in 2016. In the aftermath of each quake, most people, except those who lost electricity supply, tried watch TV to get information. It means that TV was the most immediate and reliable information source (MIC, 2014). Although the Internet and SNS played an important role of providing information and communication, people trusted TV broadcasting news the most.

Even after a while, in the restoration stage, people still relied on TV to gain information in their daily lives. The role of TV was not limited to the provision of information and news, but there were cases where local people were encouraged for revival after the quakes by TV personalities and programs. Local broadcasting seems to play eventually an important role of empowering local residents during the restoration periods through providing them with latest community-based information and encouragement through popular programs.

From the economics point of view, it could be said that TV viewers could sense a kind of additional benefit from broadcasting in such an extraordinary situation. This paper highlights the subjective evaluation of the value of local broadcasting in this regard. A hypothetical situation is assumed where local broadcasters have faced financial difficulties, and local people are requested to support them by paying contribution. The willingness-to-pay (WTP) for the contribution is measured in terms of normal and restoration stages. The difference of WTP between the two stages is regarded as a monetary evaluation on the encouragement and empowerment effect of local broadcasting.

(2) Broadcasting in Japan

There are a variety of TV broadcasting in Japan, including terrestrial, satellite, cable

and internet. Among others, terrestrial has been the most popular and reaching out nationwide. Terrestrial broadcasting consists of one public broadcaster (NHK) and five major private commercial broadcasters called “key stations” located in Tokyo. Each key station covers Tokyo and the surrounding areas. In addition, each provides programs to subsidiary local TV broadcasters in other areas. Most local broadcasters are subsidiaries of one of the key stations and cover only one prefecture. The total number of subsidiary local broadcasters is 109 as of 2017. The main revenue source for private broadcasters is TV commercials. This is a crucial difference with NHK, the public broadcaster, which has been supported with subscription fees directly collected from viewers.

This indicates that each local broadcaster is relatively small and the financial basis is weak. Although each makes its own programs and local news, their share of the total programs is around 20% or less. Local broadcasters heavily rely on the key stations. However, local broadcasters have been supported by local people and enjoyed a relatively good situation because TV has been the main source of information and entertainment for them.

However, a wave of big change is coming. Firstly, IP-based broadcasting technology will drastically change the delivery of TV programs. Once TV programs are provided through the IP network, the key stations are not suffering from the limitation of the coverage of radio wave and can reach local viewers directly without going through local broadcasters. An argument has arisen that local broadcasters are no longer necessary. In an extreme case, local programs and news will no longer be provided. For this reason, many local broadcasters regard IP-based broadcasting as a threat for them. Secondly, local areas are suffering from depopulation and ageing. The number of viewers is decreasing. Local economies are getting weaker and may not sustain local broadcasters financially in the near future since the spending on advertisement will be more and more limited.

On the other hand, local broadcasters’ original and independent programs and news are more locally oriented. They sometimes encourage local people and provide useful information to those who need it. Local broadcasters are providing consistent value to viewers. If the operation of a local broadcaster is suspended, viewers cannot receive information from them.

One possibility to continue the business and provision of its own programs could be to get a financial support directly from viewers. Although there has been no such a mechanism for supporting local broadcaster actually, it should be worth assessing the feasibility of the mechanism. Estimation of viewers’ willingness-to-pay (WTP) for local broadcasting is the first step for the purpose. The WTP can be regarded as the perceived value of viewers on local broadcasting.

2. Research method

(1) The two scenarios of situation

This research is focusing on the restoration stage from a big earthquake. Necessary information depends on the situation that people are facing. Immediately after a quake, they

may need information just for survival and want to know what is happening. The value of information is extremely high although this situation does not last long. Soon after a state of emergency, people move toward recovery and reconstruction. This stage is usually much longer. In Tohoku, where the Great East Japan Earthquake hit in 2011, the damage was so huge that it will take more than decades to fully recover, even excluding the nuclear plant accident in Fukushima. During this stage, the role of broadcasting is primarily providing information related with recovery and reconstruction, and then encouraging people toward restoration. For figuring out the importance of broadcasting in the restoration stage, the value of broadcasting in a normal situation should also be measured. Thus, the survey includes the two scenarios regarding the stage, i.e., restoration and normal situations.

(2) The areas heavily damaged by the two big earthquakes in Japan

Two major earthquakes in Japan in 2010s. People living in the areas heavily damaged by them are selected for the study:

- a. **Tohoku** (Miyagi, Fukushima and Iwate Prefectures, hereinafter Tohoku): The Great East Japan Earthquake hit northern Japan on March 11, 2011. Some sixteen thousand human lives were lost and twenty-five hundred people are still missing. One of the distinct features of the earthquake with respect to the role of ICT and media is that television and other image media provided plentiful high-resolution visual images of the earthquake and the subsequent tsunami to the people living areas across Japan except for the severely damaged areas and then to the rest of the world. In addition, social networking services performed an important role providing and exchanging information among people by complementing the role of mass media. In contrast, voice calls on mobile phones, the most popular means of communication, were pretty much useless in terms of establishing communication due to heavy traffic on telephone lines. Since 2011, a lot of reconstruction projects have been carried out. However, physical recovery of housing, transport and other social infrastructure has not been completed yet and local economy seems to be stagnant. Depopulation is more and more serious.

- b. **Kumamoto** (Kumamoto Prefecture in Kyushu Island): The Kumamoto Earthquakes, a series of earthquakes, hit central Kyushu region in April 2016. A shallow-focus earthquake of maximum intensity on the Japanese seismic scale 7 struck the area in and around Kumamoto City. Fifty people were killed and around three thousand people injured. The damage was focused in a certain area and numerous houses and other structures collapsed there. As the result, more than forty-four thousand people evacuated from their homes and stayed in temporary evacuation centers. Based on the experience of the Great East Japan Earthquake, networks and media had taken measures for enhancing durability. An emergency free Wi-Fi called 00000JAPAN was provided for local people, especially those who evacuated from their homes. Except heavily damaged areas, the recovery progress looks faster than in Tohoku since the damaged areas are relatively limited. In addition to the intensive use of SNS and other

web-based communications and media, the role of traditional media, especially local TV programs was re-evaluated since they provided useful information for local people. It was recognized that TV personalities who were familiar with local viewers encouraged them for reconstruction.

(3) The two methods employed for estimating WTP

For the estimation of the perceived value of broadcasting, two approaches are applied for the estimation: Contingent Valuation Method (CVM) and Price Sensitivity Meter (PSM). CVM is popular for estimating the subjective value of commonly perceived objects and events (Allow et al., 1993). PSM has been used mainly in marketing science, investigating consumers' perception about price (Van Westendorp, 1976).

The reason why we applied PSM in addition to CVM is that with the two approaches the estimated value should be more reliable and convincing if the both results are the same or even similar. In addition, CVM, although it has been widely used for estimating the value of unpriced issues, is affected by the rejection of the scenario if the proposed situation contradicts the respondents' perception of the issues. Especially, if the scenario supposes an additional burden on the respondents, they are more likely to reject the scenario and do not state a positive value. PSM is able to avoid this problem. No matter how they agree or disagree with the scenarios, they are simply requested to state price with regard to the quality based on their subjective evaluation. In CVM, allowing the rejection of the scenario provides useful information about the acceptability of the scenarios assumed in the analysis.

For both PSM and CVM, imaginary scenario approaches are usually applied for deriving subjective evaluation on how much respondents are willing to pay for specific objects or events. In this study, two scenarios were assumed:

- 1) How much each respondent agrees to offer as a monetary support for local broadcasters in order to maintain broadcasting in normal times, and
- 2) How much each respondent agrees to offer as a monetary support for local broadcasters in order to maintain the role of emergency information provision in the stage of restoration from the disaster.

How to contribute funding also affects the WTP. Those who are more willing to contribute directly may hate spending money for broadcasters in an indirect manner. This analysis focuses only on a direct contribution spending to broadcasters rather than a contribution through a fund for supporting broadcasters since it is considered to be more directly representing a motivation to support broadcasters.

a. Contingent Valuation Method (CVM)

CVM is an economics-based approach to the measurement of WTP. According to FAO(2000), WTP is defined as the amount that must be taken away from the person’s income while keeping his utility constant where income effects are simply ignored. Respondents are asked to report how much they want to pay for obtaining local broadcasting service. There are several methods to collect the data, but the method employed in this analysis is very simple. Firstly, each respondent is explained a hypothetical scenario regarding a critical situation of local broadcasting and then asked how much he/she is willing to pay for supporting it.

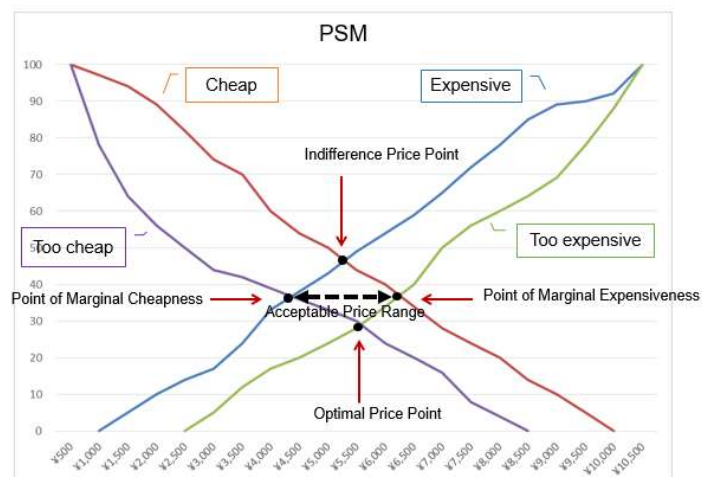
Question:

Local TV broadcasting is expected to provide information and mental supports to residents in the area you live in a (normal situation / restoration stage from a large-scale disaster). For example, it will provide information about safety, lifeline, refugees, relief goods, medical services and events that are inevitable for sustaining your lives. However, once it has a financial difficulty, it would no longer continue to provide them through broadcasting. In the situation, suppose you will give some individual financial support directly. How much would you like to pay for broadcasting?

b. Price Sensitivity Meter (PSM)

This method is based on consumers subjective evaluation on the quality and price relationship and simply asking the four different price perceptions regarding the item: 1) expensive, 2) too expensive to buy, 3) cheap, and 4) too cheap. Cumulative distribution of the four prices will yield four intersections, indicating the following four different price settings: point of marginal cheapness (PMC), point of marginal expensiveness (PME), optimum price point (OPP) and indifference price point (IPP). The range of acceptable price is defined the price range between PMC and PME.

Fig. 1: Price Sensitivity Meter



(4) Data

Data were collected through questionnaire surveys sampling over local residents in the disaster areas: Fukushima, Miyagi and Iwate Prefectures for the Great East Japan Earthquake in 2011 and Kumamoto Prefecture for the Kumamoto Earthquake in 2016. Since random sampling is extremely difficult in Japan due to the strict personal information and privacy protection, the survey was conducted over the sample panel of a survey company.

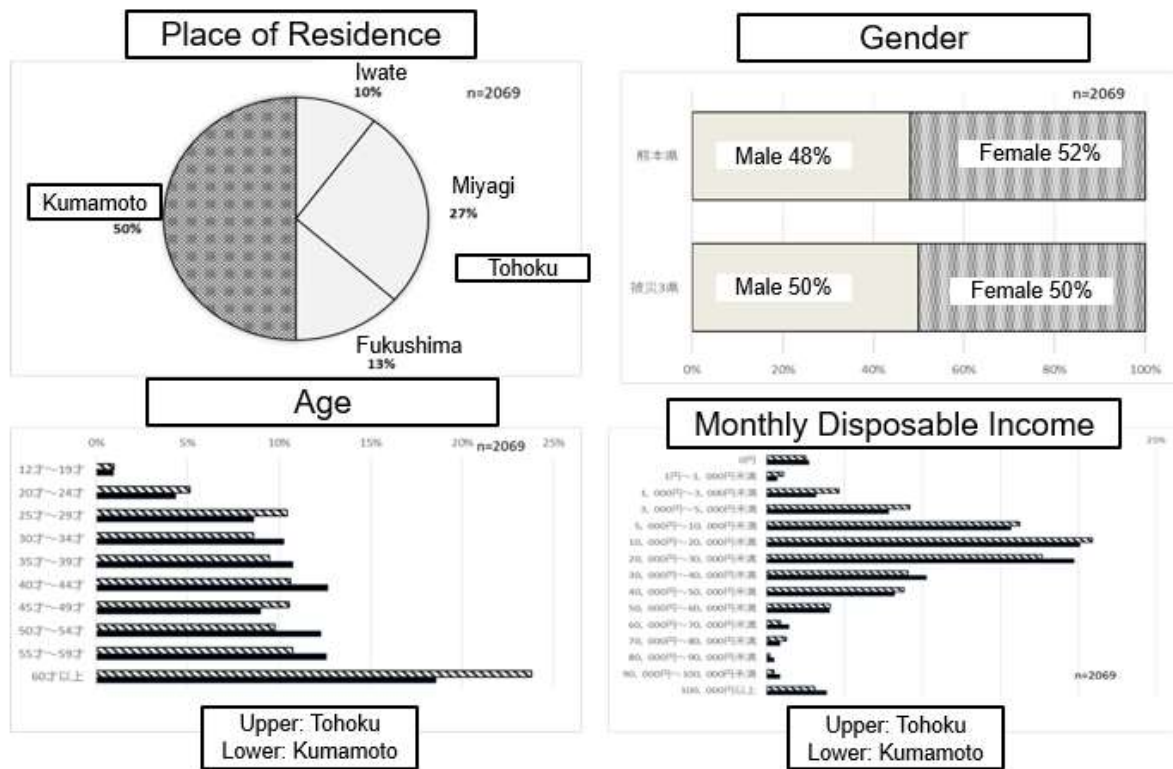
Sampling details are shown in Table 1. The basic statistics of the respondents are shown in Fig. 2. Around 70% of the respondents accepted the scenario of supporting broadcasters by paying some amount of contributions. The rest did not show positive

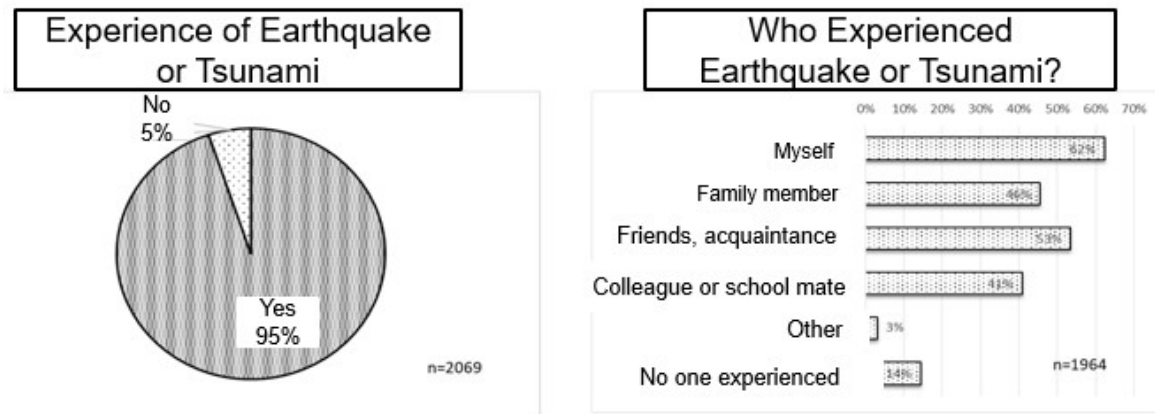
contributions or reject the scenario.

Table 1: Details of the Survey

Dates	Auguste 23-26, 2017
Targeted areas	Tohoku: Miyagi, Iwate and Fukushima Prefectures for the Great East Japan Earthquake in March 2011
	Kumamoto: Kumamoto Prefecture for the Kumamoto Earthquake in April 2016
Method	Online questionnaire survey
The number of samples collected	2,069 (Around 1,000 from each areas)

Fig. 2: Basic Statistics of the Respondents





3. Result

(1) CVM

The cumulative distribution of WTP is shown in Figs. 3(a) and 3(b) for Tohoku and Kumamoto, respectively. Each includes the cases for normal and restoration stage scenarios. The average, median and mode are calculated as shown in Tables 2(a) and 2(b), each of which includes the cases for the whole samples and the respondents presenting a positive WTP. Due to the steep downward distribution of WTP, the arithmetic average is not likely to represent appropriately the mean of the distribution of the samples. The median, standing for the 50% the distribution, can be regarded as an appropriate value of representing the distribution of WTP. The summary of the result is as follows.

a. Tohoku

- The average WTPs of the whole samples derived from CVM are 491 and 655 JPY per month while those of the positive WTP samples, i.e., excluding resistant responses, are 757 and 936 JPY, for the normal and restoration stage scenarios, respectively. People are willing to pay more in the restoration stage than in the normal stage.
- The median and mode of the WTP for the whole samples are 100 and 0 JPY for the two scenarios. Those of the positive WTP samples are equally 500 JPY for the two scenarios.

b. Kumamoto

- The average WTPs of the whole samples derived from CVM are 578 and 629 JPY per month while those of the positive WTP samples, i.e., excluding resistant respondents, are 849 JPY and 884 JPY, for the normal and restoration stage scenarios, respectively. Even in Kumamoto, people are willing to pay slightly more in the restoration stage than in the normal stage.
- The median and mode of the WTP for the whole samples are 100 and 0 JPY, and 200 JPY and 0 JPY, for the normal and recovery scenarios. Those of the positive WTP are equally 500 JPY for the two scenarios, the same as in the case of Tohoku.

c. Resistant responses

Since people are used to free TV programs provided by commercial broadcasters, it is not so much a question that there are respondents who feel resistant to pay contribution to what has been provided for free even if it is in a hypothetical scenario. Respondents who did not represent a positive WTP are regarded as resistant responses. There were 29.0% and 33.3% respondents in Tohoku for the restoration and normal scenarios. 27.1% and 30.8% of the total respondents did not show a positive WTP for the respective scenarios in Kumamoto. It seems that relatively many people accepted to pay contribution even though it simply increases a burden on viewers. In the both areas, people are less resistant in the stage of restoration than in the normal stage. The breakdown of the reason of resistance is listed in Fig. 4(a) and 4(b). Those who are “unwilling to pay any contribution to local broadcasters” and “disagree with any system to support local broadcasters” are regarded as pure resistant responses. The share of them was around 20% of the total respondents, which means most respondents accepted the burden of paying contribution. This suggests that local TV broadcasting programs are important for local people and worth paying contribution for supporting them.

Fig. 3(a): WTP: The Case of Tohoku

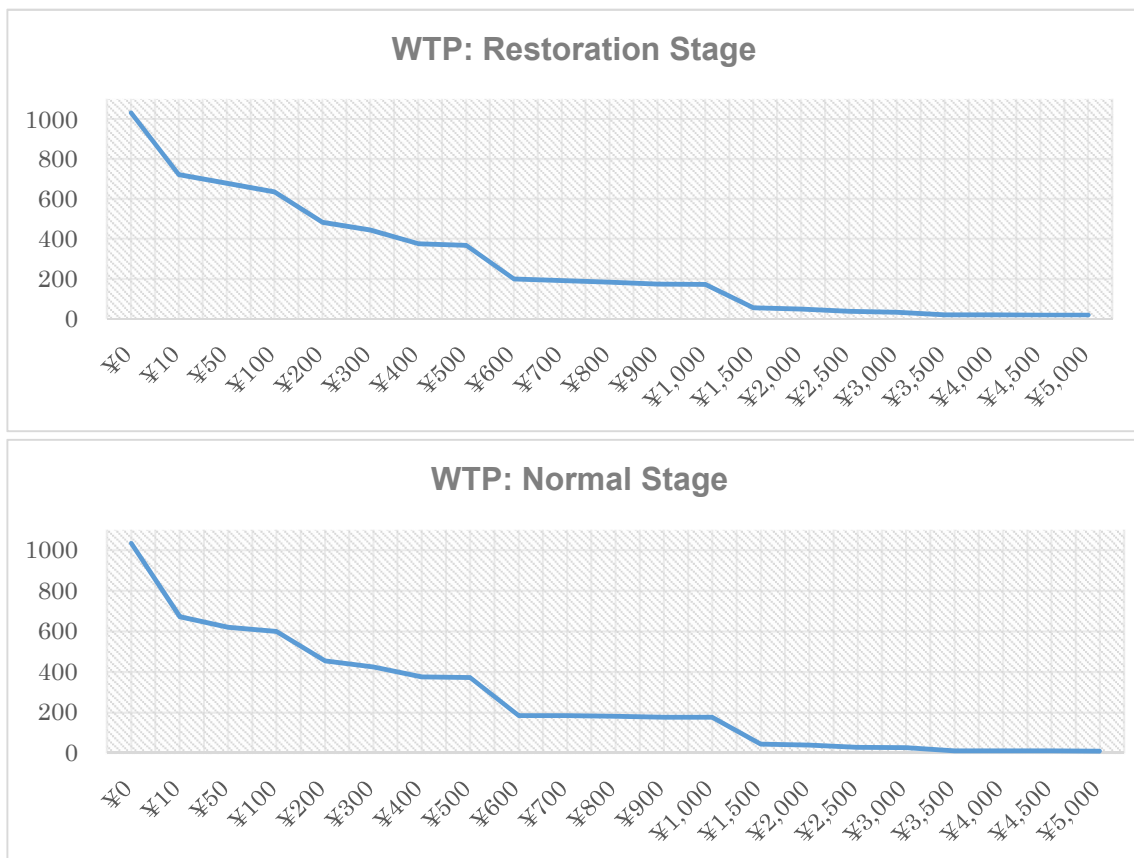


Fig. 3(b): WTP: The Case of Kumamoto

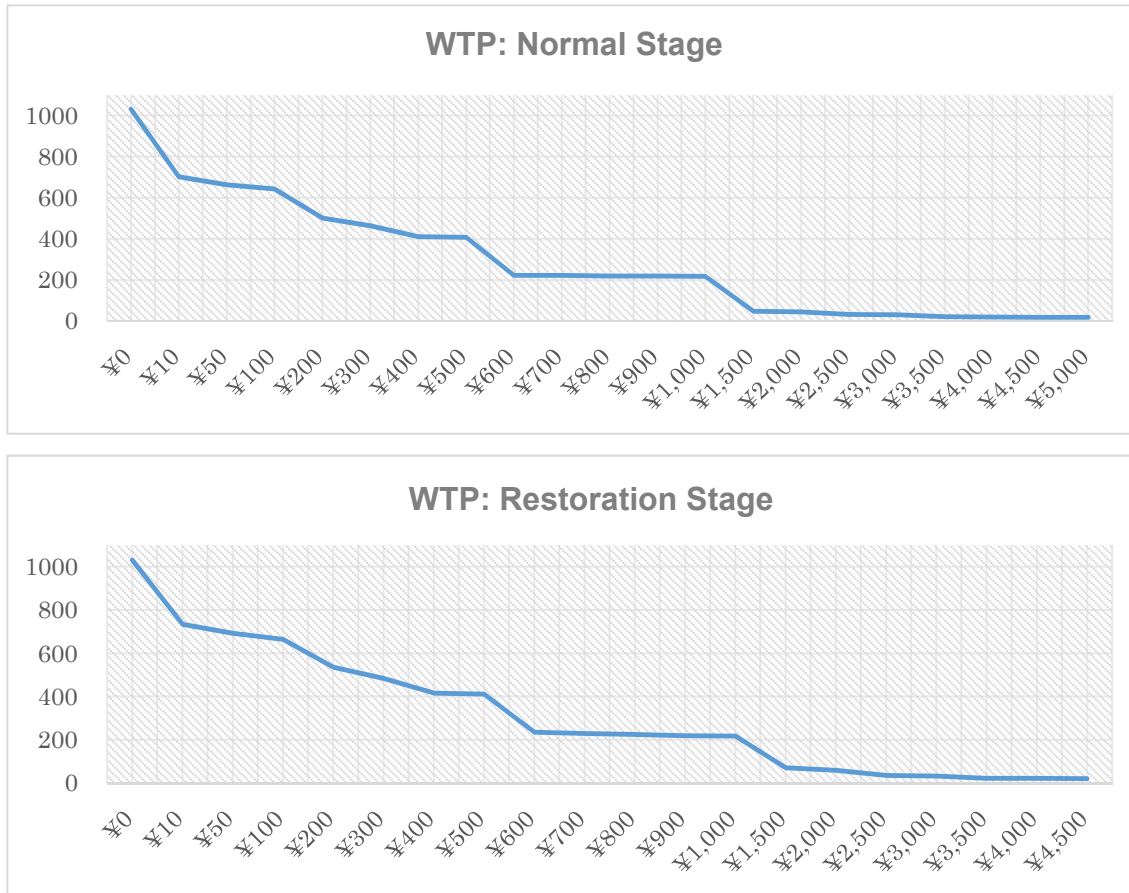


Table 2(a): The Average, Median and Mode of WTP: The Case of Tohoku

		# of samples	Average	Median	Mode
Normal stage	Whole samples	1,035	¥491	¥100	¥0
	Positive WTP samples	672	¥757	¥500	¥500
Restoration stage	Whole samples	1,035	¥655	¥100	¥0
	Positive WTP samples	724	¥936	¥500	¥500

Table 2(b): The Average, Median and Mode of WTP: The Case of Kumamoto

		# of samples	Average	Median	Mode
Normal stage	Whole samples	1,034	¥578	¥100	¥0
	Positive WTP samples	704	¥849	¥500	¥500
Restoration stage	Whole samples	1,034	¥629	¥200	¥0
	Positive WTP samples	736	¥884	¥500	¥500

Fig. 4(a): Resistant Responses: The Case of Tohoku

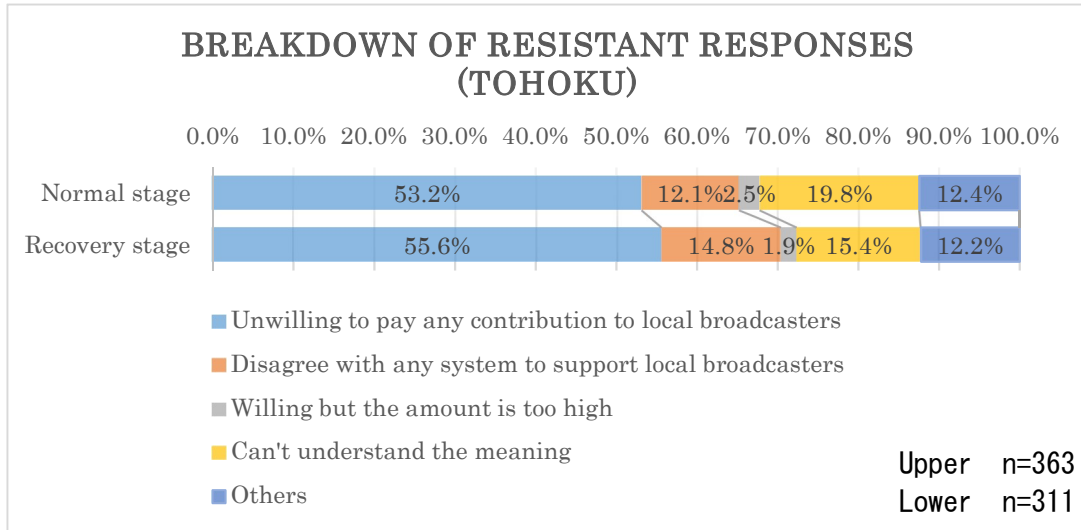
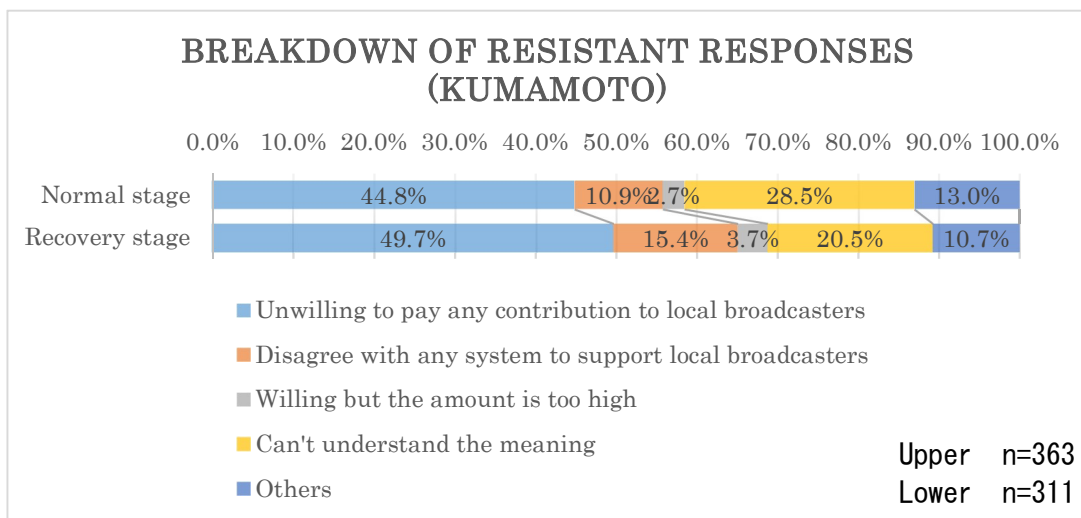


Fig. 4(b): Resistant Responses: The Case of Kumamoto



(2) PSM

The result is supported also by PSM which represents an acceptable price range of the contribution for supporting local TV programs. Table 3 summarizes the range of the four price indicators for the two scenarios in the two areas. Figs. 5(a) and 5(b) visualize the result for the restoration stage in the two areas, which are demonstrated as two representative cases. The shapes and positions of the four price curves in each graph are consistent, which constitute the four price indicators. Since the curves were not approximated with a distribution function, the intersections can be identified only between two proximate values. The result is summarized as follows:

a. Tohoku

In the restoration scenario, PME and PMC are located in the range of 500-600 JPY and 200-300 JPY, respectively, so that the acceptable price range is between 200 and 600 JPY. If the interval between OPP and IPP can be regarded as the appropriate price range, it is defined as the interval between 400 and 500 JPY. In the normal stage scenario, the

acceptable and appropriate price ranges are between 300 and 600 JPY and 400 and 500 JPY. The price ranges for the two scenarios are almost the same. This suggests that a significant difference between the two situations cannot be reflected in the price range in the PSM analysis.

b. Kumamoto

In the restoration scenario, PME and PMC are located in the range of 600-700 JPY and 400-500 JPY, respectively, so that the acceptable price range is between 400 and 700 JPY. The appropriate price range, i.e., the interval between OPP and IPP, is between 500 and 600 JPY. In the normal stage scenario, the acceptable and appropriate price ranges are between 300 and 600 JPY and 400 and 500 JPY. The result is quite similar to the Tohoku case although the scale of the quake was smaller in Kumamoto. It could be said that the value of local broadcasting is almost unique regardless of place or situation.

Fig. 5(a): PSM: The Case of Tohoku (Restoration Stage)

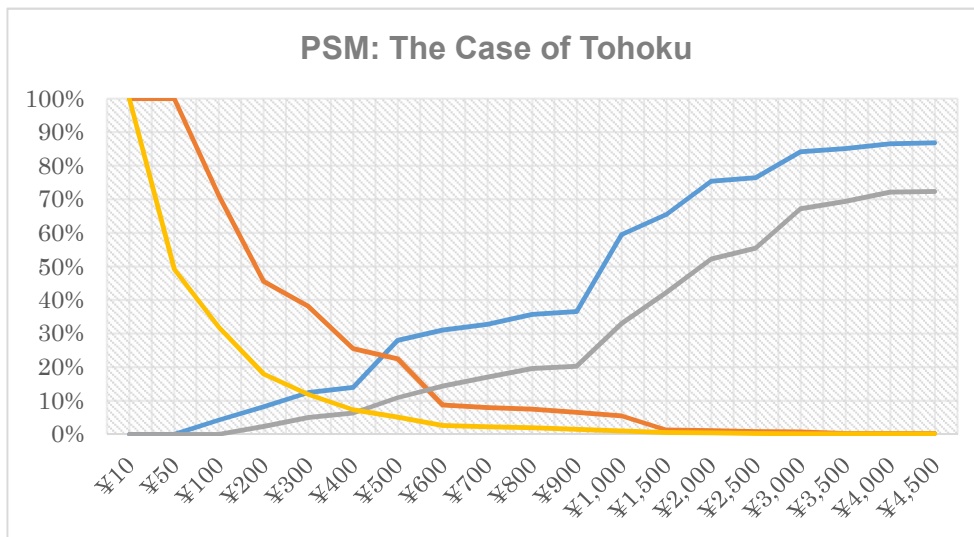


Fig. 5(b): PSM: The Case of Kumamoto (Restoration Stage)

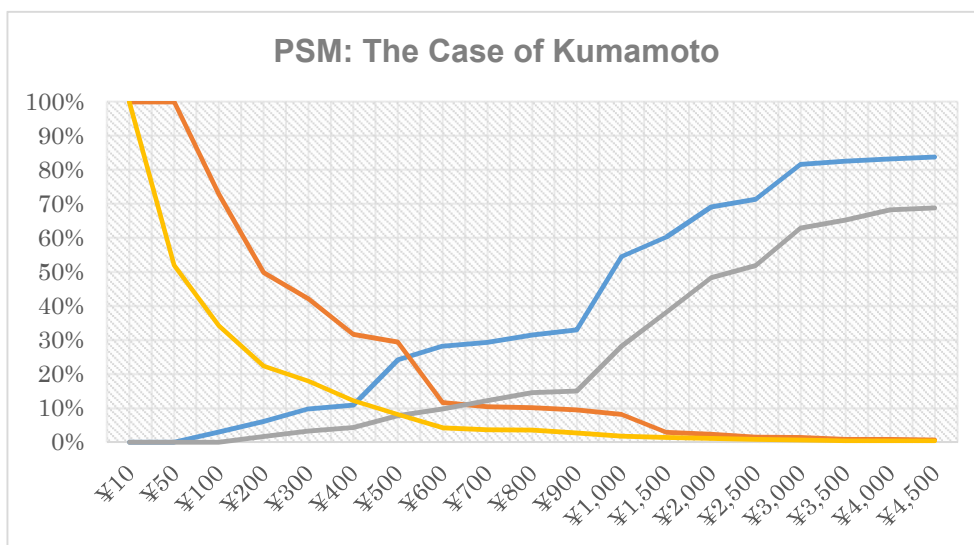


Table 3(a): The Four Price Indicators Derived from PSM for the Restoration Stage Scenario

	Tohoku		Kumamoto	
	Upper	Lower	Upper	Lower
Indifference price point (IPP)	¥400	¥500	¥500	¥600
Optimum price point (OPP)	¥400	¥500	¥500	¥600
Point of marginal cheapness (PMC)	¥200	¥300	¥400	¥500
Point of marginal expensiveness (PME)	¥500	¥600	¥600	¥700
Acceptable price range	¥200–¥600		¥400–¥700	

Table 3(b): The Four Price Indicators Derived from PSM for the Normal Stage Scenario

	Tohoku		Kumamoto	
	Upper	Lower	Upper	Lower
Indifference price point (IPP)	¥400	¥500	¥500	¥600
Optimum price point (OPP)	¥400	¥500	¥500	¥600
Point of marginal cheapness (PMC)	¥300	¥400	¥400	¥500
Point of marginal expensiveness (PME)	¥500	¥600	¥700	¥800
Acceptable price range	¥400–¥700		¥400–¥800	

(3) Implication of the result

The result suggests that most people in the disaster area agreed to support local broadcasting in time of financial difficulties. This implies that local broadcasting has a significant value for them. There is discussion that local broadcasting is no longer necessary. However, local people perceive its value and are pleased to pay contribution for it. When IP-based broadcasting is implemented, broadcasters should take the importance of localities into consideration. Although, from the efficiency point of view, localities tend to be neglected, they are still important for people living there not only in normal situations but also in the restoration stages from a major disaster. It is needless to say that local information and news helps local people to make action in emergency circumstance. They are still useful and valuable even in an ordinary situation.

The amount of contribution payable for local broadcasting is around 500 – 600 JPY (4–5 Euros) per month, based on CVM, calculated from all samples including resistant responses. This result is also supported by PSM. As a reference, the monthly viewing fee for terrestrial broadcasting provided by NHK, the Japan's public broadcaster, which Japanese people are obliged to pay, is 1,300 JPY (10 Euros). This means that local private broadcasting is valued around a half of the public broadcasting, which seems plausible because people rely more on NHK than private broadcasters as a news source.

The effect of encouragement and empowerment is reflected in the WTP, but is not significantly large. The average WTPs in the restoration stage for all samples were 33.4% and 8.8% higher than the normal stage in the Tohoku and Kumamoto cases, respectively. However, the median didn't show a significant difference between the two stages, 100 JPY for the both stages in Tohoku, and 100 JPY and 200 JPY in Kumamoto. The similar result was derived

from the samples excluding resistant responses. From PSM, no evidence that support a higher WTP in the restoration stage could not be found. It could be said that people could not recognize a significant difference between the normal and restoration stages. It is because, from the outside, we see their daily lives are still in the restoration stage but, for local people, they spend their daily lives in their circumstances and would not perceive any differences from being normal.

4. Conclusion

Japan has experienced a lot of natural disasters. Television is still the most reliable media source in time of disasters (see Mitomo et al., 2015). Although social media are also a useful information source. The advantage of social media is that they can provide personalized or localized information to people. However, the reliability is a serious concern since people cannot judge whether the information provided through social media is true or fake at the time they receive it. For each individual, the situation is different and thus necessary information is also different. What is necessary for news or information should be that they are reliable and customized depending on the situation and location. In the case, local broadcasting has an advantage because it covers only a local area and provides localized news and information in addition to nationwide news and information provided by a key broadcaster.

On the other hand, some local broadcasters have a weaker financial basis. This paper has approached the issue of how local people valued local broadcasting and estimated their willingness-to-pay for the contribution to support local broadcasters. In the two different scenarios of the situation, i.e., normal and restoration from a disaster, the CVM and PSM analyses showed that a majority of people would accept to pay contribution of around 500-600 JPY for supporting local broadcasters.

TV programs released by private broadcasters in Japan have been provided for free since they are fully supported by commercial sponsors. For this reason, there must be a certain percentage of people who reject to pay for broadcasting. Actually, some twenty percent of the total respondents protested bidding.

Regarding the difference of the value between the two situations, the result suggested that people placed merely a twenty percent higher value in the restoration period than in normal times in both CVM and PSM. One may suspect that this is an underestimated result because it is anticipated that people should place a much higher value in the event of disasters. However, our focus is not a chaotic situation immediately after the quakes but a restoration stage from the aftermath. Therefore, the result is acceptable. It strongly suggests that broadcasting has a unique and stable value regardless of the situations.

Most Japanese local broadcasters are subsidiaries of the key stations, i.e., the Tokyo-based major commercial broadcasters. They have produced their own programs in addition to programs sent from the key stations. There is a discussion that, if IP-based TV broadcasting

penetrates, traditional local terrestrial broadcasters will be bypassed and local broadcasting would be no longer necessary. It is more likely that advertisement business no longer sustains them. The estimated WTP can be regarded as the amount of contribution that people would like to pay for sustaining local broadcasting. The result of the analysis suggests that for local audience paying a direct contribution to local broadcasting could be an alternative way to support it as far as local people think it necessary.

In conclusion, this study has successfully quantified local people's intention to pay for the continuity of local broadcasting using the two quantification approaches. The fact that there exists a difference of WTP between ordinary situations and the restoration phase suggests that local broadcasting has a certain role of encouraging local people although it is not so large as expected. The positive WTP and relatively low number of protest bids suggest that, in place of advertisement, local broadcasting could be sustained by a contribution from viewers.

References

- Aldrich, Daniel P., *Building resilience: social capital in post-disaster recovery*, University of Chicago Press, 232p, 2012.
- Arrow, K., Solow, R., Portney, P. R., Leamer, E. E., Radner, R., and Schuman, H., "Report of the NOAA Panel on Contingent Valuation," *Federal Register*, vol. 58, no. 10, 1993.
- FAO(2000), *Applications of the contingent valuation method in developing countries: A survey*, FAO Information Division. <http://www.fao.org/docrep/003/X8955E/x8955e00.htm#TopOfPage> (last accessed in July 2018).
- Mitomo, H. and Tokio Otsuka, "Evaluating the values of local broadcasting in time of restoration from the East Japan and Kumamoto earthquakes", the 54th Annual Meeting, Japan Section of Regional Science Association, 2017.
- Mitomo, H., T.Otsuka and M. Kimura, "The role of media and ICT to motivate people to take post-quake recovery action: an evidence of the "Pythagorean effect", in H.Mitomo, H. Fuke and E. Bohlin eds., *The Smart Revolution Towards the Sustainable Digital Society: Beyond the Era of Convergence*, 386 pages, Edward Elgar, 2015.
- Ministry of Internal Affairs and Communications (MIC), White Paper 2014.
- Van Westendorp, P., NSS-Price Sensitivity Meter (PSM) - A new approach to study consumer perception of price, Proceedings of the ESOMAR Congress, 1976.