

Disaster, Social Fairness, and Social Status:

Damage and Social Consciousness after the Great East Japan Earthquake

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American Sociological Association

August 22-25, 2015 at Chicago

Social Consequences of Disasters

- The Disaster Studies literature has noted that persons with few social-economic-political resources and low social status are most vulnerable to economic, psychological, and physical disaster-caused damage.
- They more likely to live in locations or dwellings that are less secure have less social capital, less stable employment, and little/no savings or personal insurance to recover fully.
- Lower SES people are more likely to experience post-disaster employment disruption, depression/anxiety, and reduced social trust.
- In sum, major disasters tend to exacerbate pre-existing inequalities.

3-11 Damages

- In this study, we examine social status differences in **property damage, anxiety, and social fairness** after the earthquake in two parts of Tohoku, the city of Sendai and the Senhoku area, a less populated semi-rural.
- Sendai, 300 kilometers from Tokyo, has a population of about 1 million and is the largest city in the Tohoku region. About 10 kilometers from the coast, it suffered [little serious direct tsunami damage](#) and avoided severe damage and large fires.
- Located about 100 kilometer north from [Fukushima Daiichi Nuclear Power Plant](#), it was beyond serious radioactive contamination. Nonetheless, the 9.0 earthquake damaged houses, destroyed household goods, and interrupted public services.
- While loss of life within the city of Sendai was low, many Sendai residents lost relatives, customers, and long-term social contacts.

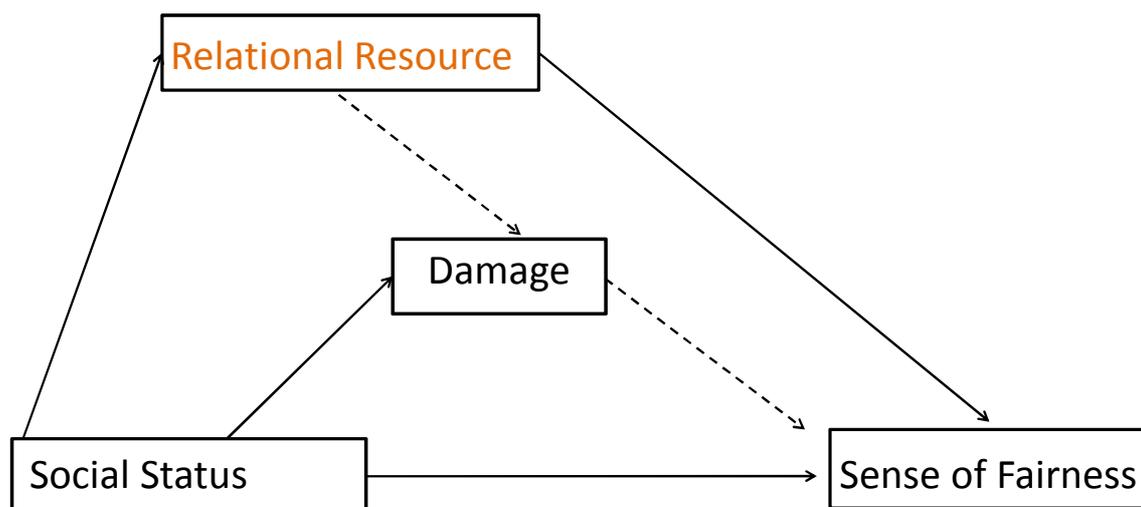
Social Inequality

- After the Great Hanshin Earthquake (6.8 level) of 1995 discussions focused on higher levels of damage to low income and working-class urban areas of Kobe and Osaka (Metropolitan Area in Western Japan). Such discusses have been absent after 3-11. This is because Sendai lacks large industrial areas with concentrations of working-class residences.
- 3 ½ years afterwards, 60% (about \$US 30 Billion) of relief-reconstruction funds from the national government remain and 35,332 people were still living in temporary shelters across the affected Tohoku region.
- However, No one has yet examined the relationship between disaster and socio-economic status.

Structure of Inequality: Japan

- Japan has been said to Equal, Classless Society. However, over the past 20 years, Japan has seen an increase in aggregate economic inequality.
- The value of the manual labor has been fallen in the situation of the globalization and the financial crisis tends to have negative effect to many companies and causes unemployment.
- Japan has a large urban-rural gap with regard to income, social status, and employment prospects.
- Rural people who have many social relations are foundations of Japanese conservative political powers.

Model



Hypotheses

- A person's social status is directly related to his/her post-disaster anxiety about the future and belief that Japanese society is fair or just. People with the highest social positions and greatest access to valued resources, express the least anxiety and greatest fairness.
- The amount of earthquake property loss is not directly related to post-disaster anxiety and feelings of unfairness.
- Independent variables include, size of employing organization, self-defined social stratification position, amount of property, and social-relational resources.

Data and Method

Data are from a two-part survey.

- Part one was conducted in Sendai in November and December 2011, with a panel survey in 2012. Sample size 2,100 and 1,532 answers were obtained (73% response rate)
- Part two was conducted in the Senhoku area (an inland rural area near Sendai) in November 2012.
- Adults over 20 years old included.
- It was self-administered survey. 70 students of Tohoku University visited 70 points in Sendai and meet respondents or distributed questionnaires in post boxes and asked people to answer them. The 70 points were based on probability proportionate sampling, and sampled house units were selected by randomly choosing target houses near each of the 70 points.

General Findings

- In both Sendai and Senhoku rural area, **over half of respondents said current Japanese society is not fair**(Figure 1).

- In the results for Figure 2 on the "The amount of loss from the earthquake" shows that **about one half of respondents had losses of under 100 thousand yen** (about \$1,000 U.S.). However, more than 10% of people in Sendai and Senhoku answered 2 million yen or more (\$20,000 US).

- Many people had earthquake damages to their house or their property even if they had no damages from the tsunami.

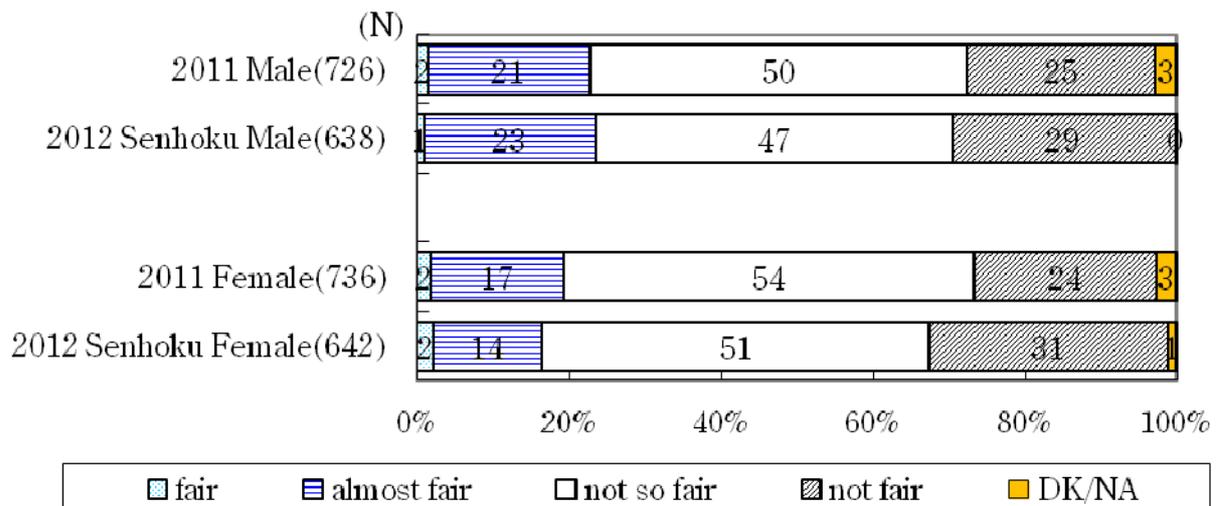


Figure 1 . Do You Think is the Current Society Fair?

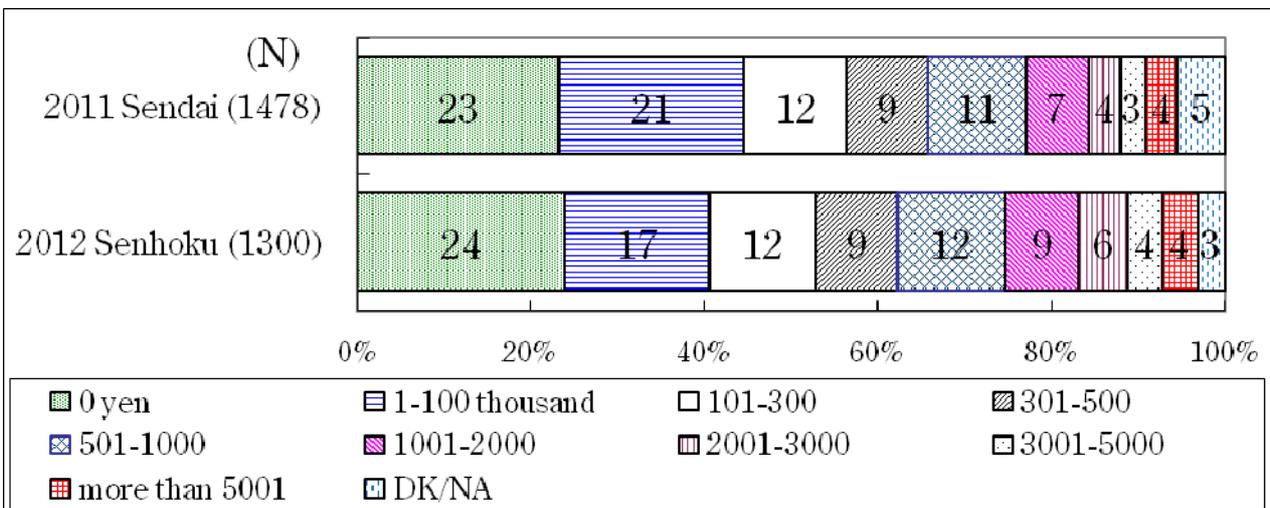


Figure 2. Amount of Loss from the Earthquake: Japanese Yen.

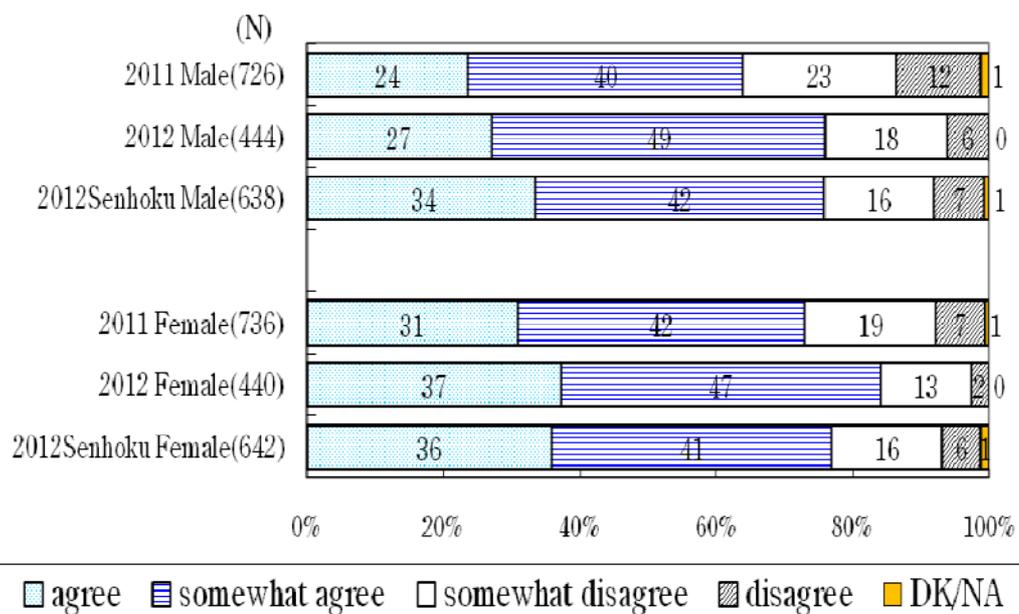


Fig 3. "I am anxious about my future life."

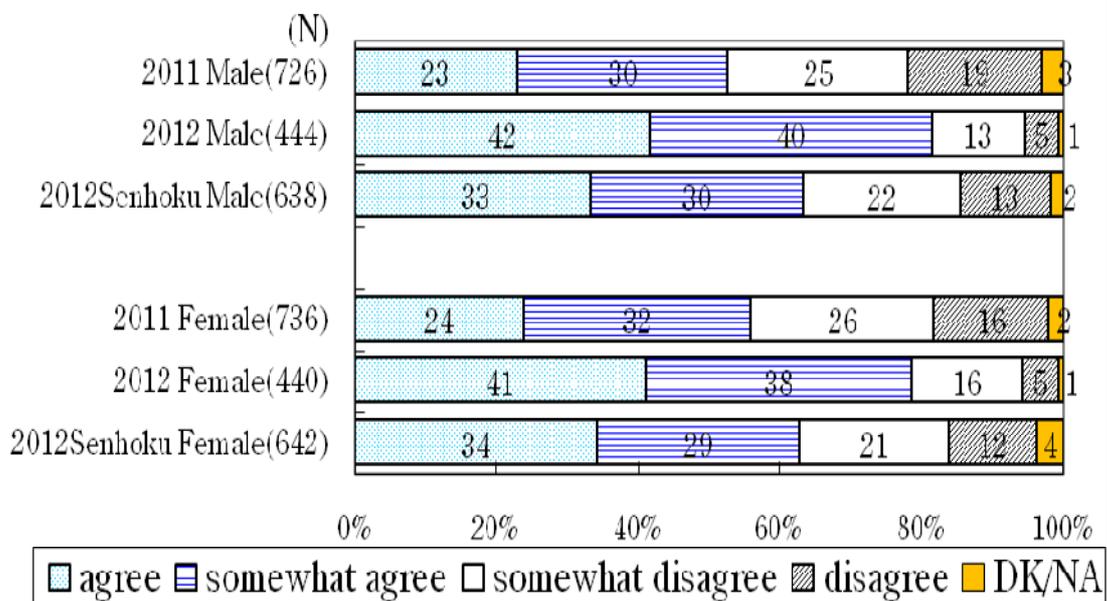


Fig 4. "It is highly possible that future income will decrease."

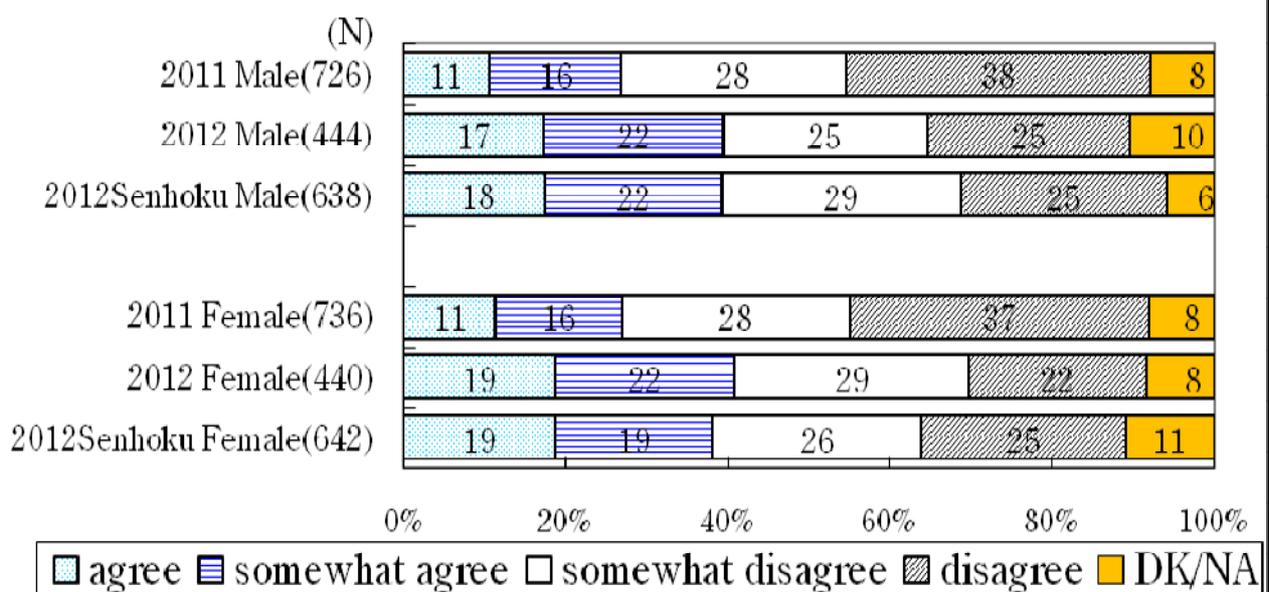


Fig 5. "It is highly possible that I will lose my job in the future."

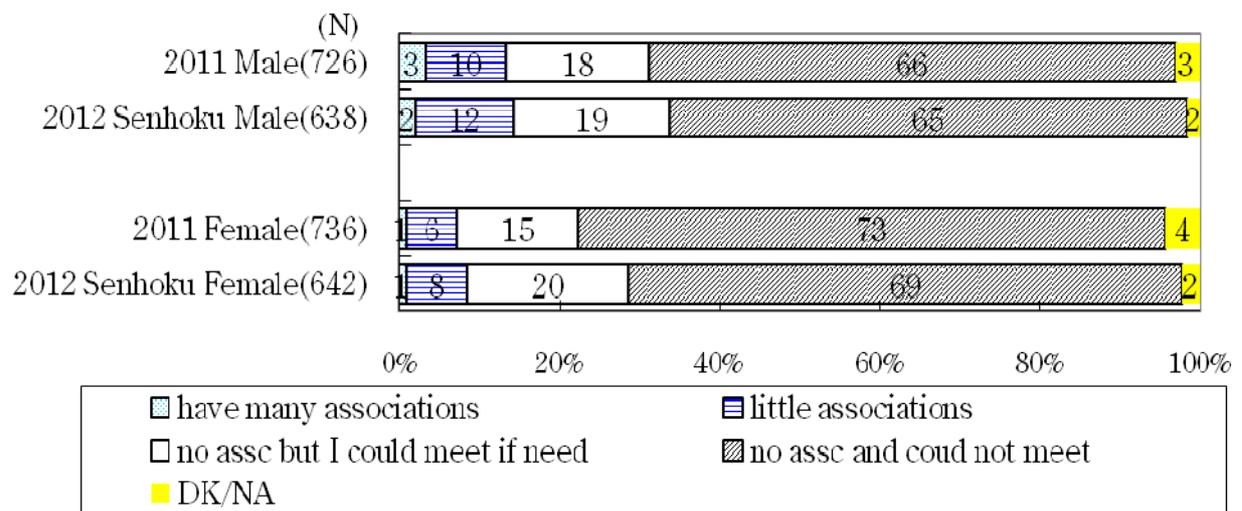


Figure 6. Relational Resource: "How much association do you have with the people under mentioned?
Local or national political representatives.

Structural Equation Model of Faieness

- **Dependent Variable :**
 - Sense of Fairness on Current Society
 - Anxiety on Future Income
 - Amount of Damage from the Earthquake
- **Independent Variables:**
 - age, education, number of family,
 - size of employing organization, self-employed business of dummy variable
 - social status
- Deleted respondents age under 29 and over 60, and respondents without jobs to exclude influence of retirement or student or seeking job.

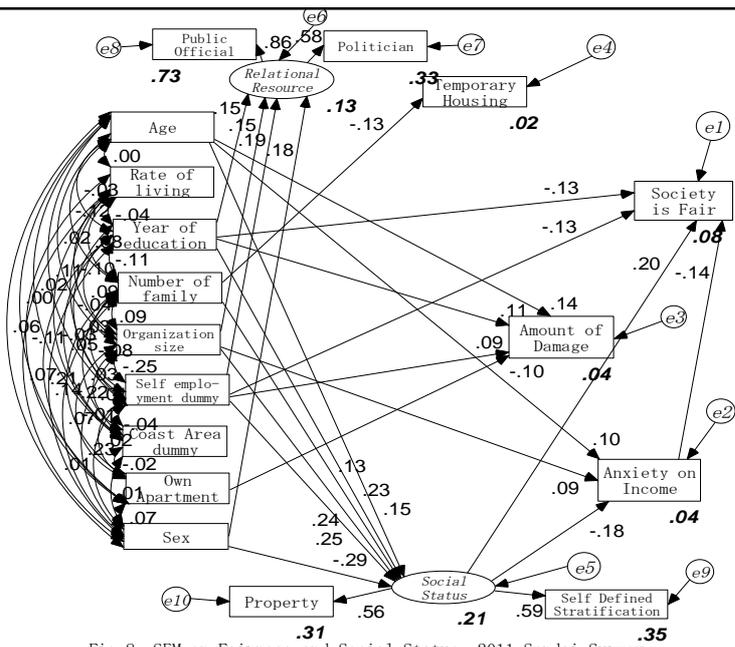


Fig 8. SEM on Fairness and Social Status. 2011 Sendai Survey, Age 30 to 59. House owner only. N=341. Standardized coefficients. Bold numbers below variables are R-squares. Chi-square=73.96 df=74 p=.48 AIC=231.96 GFI=.98 AGFI=.95 CFI=1.00 RMR=3.12 RMSEA=.00

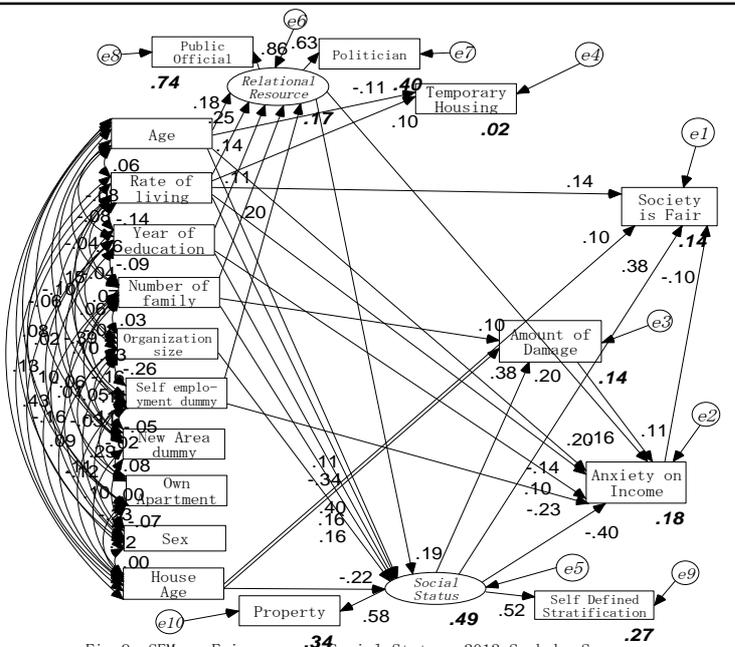


Fig 9. SEM on Fairness and Social Status. 2012 Senhoku Survey, Age 30 to 59. House owner only. N=438. Standardized coefficients. Bold numbers below variables are R-squares. Chi-square=115.29 df=76 p=.00 AIC=305.29 GFI=.97 AGFI=.94 CFI=.95 RMR=9.20 RMSEA=.03

Findings: Fairness

- A significant association was found between the sense of fairness and social status (.20), education level (-.13), self employment dummy (-.13), and anxiety about income (-.14).
- People who felt Japanese society is NOT FAIR
 - Lower social status
 - Higher education
 - Self-Employed
 - Fear of income reduction* **INDIRECT EFFECTS**
 - Low social status
 - Older

Anxiety about Future Income

- PEOPLE LEAST LIKELY TO EXPRESS POST-DISASTER ANXIETY WERE:
 - Highly educated
 - Employed in large organization
 - High on Social Relationships
 - Males
- NOTE: amount of damage is not related to a person's social position in Sendai. Unlike studies on Katrina in US.

CONCLUSION

- High status people also believe there is more “fairness” in Japan.
- People with high status positions, i.e., more property, show **less** post-disaster anxiety about their futures than low status people.
- Other measures of position in the socio-economic structure (i.e., size of employing organization and education) affect anxiety indirectly through social status.
- Relational resource (social capital) also reduces levels of anxiety about the future.
- The question is whether the “anxiety” and “fairness” gaps were created or expanded by the disaster itself, or reflect pre-disaster conditions or trends.

CONCLUSION

- Levels of post-disaster anxiety correspond to a pre-disaster social division among Sendai residents.
- Those who express the greatest concern about recovery are established long-time residents. They tend to be less educated, self-employed, and well-connected within local social networks.
- The least anxiety was reported by recent, educated residents who tend to work for large companies and who are less integrated into local community networks.

Qualification

- We lack longitudinal data, so we do not know whether the anxiety gap found and belief in fairness between high status/resource-rich persons and others existed prior to the disaster, or whether the disaster created/intensified the gap.
- Follow-up surveys are being conducted in 2014-15 to track trends.
- New Survey has been conducted in Fukushima City in 2015.

2015 June Survey in Fukushima City
Data is not completed



Thank you very much

for your attention,

and for people cooperate with the survey,

Prof Kawamura of Tohoku Univ and students,

Scientific Fund for Research (SFR) of Rikkyo University.