

Statistical characteristics of environmental consciousness and pro-environmental behavior in East Asia

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Abstract

In this paper, we clarify the characteristic of people's environmental consciousness, the association between environmental consciousness and pro-environmental behavior, and the impact of demographic attributes in China, South Korea, and Japan using survey data. The results obtained from multiple correspondence analysis have shown that the women had a strong tendency to perform pro-environmental behavior more active than men in the three countries. On the other hand, people with high household income did not perform pro-environmental behavior actively, composing to those with low or medium income.

Keywords: Cross-national social survey, Environmental issue, Multiple correspondence analysis

1. Introduction

Environmental consciousness is defined as a kind of attitudes toward the individual's recognition value judgment and behavior intention concerning environmental issues. On the other hand, pro-environmental behavior is defined as any action that contributes to environmental preservation in daily life. Generally, "buying eco-goods", "recycling", "saving water", "saving energy", "riding a public transportation", and "using eco-bag" are considered as typical examples. In this paper, we analyze the characteristic of people's environmental consciousness and the actual condition of their pro-environmental behaviors using a social survey data collected in China, South Korea, and Japan from 2010 to 2011. We also discuss what people should consider for maintaining and improving the environmental problem based on the result of data analysis.

Even if people have the consciousness for environmental issues in common, it may differ from people's recognition according to social background, because environmental consciousness of individuals ranges widely (Zheng *et al*, 2006). Thus, People's consciousness and interest for environmental issues are different in each country by the intrinsic culture and life style. Additionally, Pro-environmental behavior was related in some way with environmental consciousness. However, it was difficult to express it in terms of causality with a simple model because it was affected by other factors such as demographic attributes, socioeconomic condition etc. (Zheng,

2010). Therefore, this paper aims to find out the association between the degree of satisfaction with the quality of neighborhood environment and performance of pro-environmental behavior. Moreover, it also attempts to show the impact of demographic attributes in China, South Korea, and Japan.

2. Method

The data used in this study were collected through a questionnaire entitled, “The East Asian Survey on People’s Sense of Culture, Life and Environments – 2010-2011 Survey in Japan, South Korea and China—”, by face-to-face interview to the sample individuals in China, South Korea, and Japan from 2010 to 2011. The basic information on survey condition in each city/country is presented in Table 1. For details, see Zheng (2012).

Table1: Sample design and completed interviews

Region/Country	Japan	South Korea	Beijing	Hangzhou
Study population	Over 20 years	Over 19 years	18-79 years	18-80 years
Survey period	Feb, 2011	Jan/Feb, 2011	Oct, 2011	Oct, 2011
Survey plots	100	126	100	100
Completed interviews	894	1002	1000	1011

In order to investigate the difference on environmental satisfaction among Beijing, Hangzhou, South Korea, and Japan, we picked up questionnaire Q7 in our social survey data as follows:

Q7. How satisfied are you with the quality of environment in areas nearby your home?

- a. Cleanness of the air
- b. Cleanness of water(i.e., rivers or sea near your home)
- c. Lushness of fauna(i.e., vegetation, forests)
 - 1. Satisfied 2. Somewhat satisfied 3. Somewhat dissatisfied 4. Dissatisfied

To show the characteristics of pro-environmental behaviors in four survey areas, we use questionnaire Q15, and Q15-SQ which is the reason for performing the behaviors described in Q15.

Q15. How often have you performed each of them during the past year or so?

- a. Buy products that are energy-efficient and/or have been designated by government as eco-friendly. (*Eco mark* hereafter)
- b. Recycle things, or otherwise avoid throwing them away so as to reuse them again.(*Recycle* hereafter)
- c. Try to avoid overusing water in washing things or in the shower. (*Water-saving* hereafter)
- d. Try to use energy for lighting, heat or air conditioning and so on, in moderation. (*Power-saving* hereafter)
- e. Avoid driving or taking a taxi and use mass transit such as bus or train. (*Public*

transport hereafter)

- f. Turn down offers for bags or packaging during shopping and use your own shopping bag. (*eco-bag* hereafter)

1. Do so always 2. Sometimes 3. Not very often 4. Not at all

Q15-SQ. What is your reason for doing so?

- a. To save money b. In consideration of the environment

And demographic attributes used in this study are as follows: F1(Gender:Male /Female), F2(Age: 18-34years/35-49years/Over 50 years), F3(Education: Elementary school or Middle school/High school/Junior college or Vocational school/College or Graduate school), F8(Household income: Lower/Middle/Upper).

To find out the structural pattern of environmental consciousness, the influence of demographic factors and the association between pro-environmental behavior and environmental consciousness, Multiple Correspondence Analysis (MCA) is employed for analyzing Q7, Q15 and demographic attributes.

3. Results

Figure.1 shows the percentages of respondents who felt “satisfied” or “somewhat satisfied” with the cleanness of air, water, and lush greenery in their neighborhood. The degree of environmental satisfaction with all items in Japan and Hangzhou were higher than the values in South Korea and Beijing. The result of Zheng (2010) was that Tokyo was the lowest in the degree of environmental satisfaction with the air and water. Comparing the result in Tokyo, people’s satisfaction with the local environment in national wide corresponds with the present quality of their local environment over the past years.

Figure.2 demonstrates the percentages of the “Do so always” choice for all types of behaviors. Except for the “Recycle” choice, the percentages of the remaining five behaviors were the highest in Beijing. The percentages of the “Recycle” choice were the highest in South Korea. If we add the “Sometimes” choice into the percentages, the “Recycle”, “Water-saving”, and “Power-saving” choice distribute 90% in four cities. Figure.3 shows the percentages of the “In consideration of the environment” choice. In Figure.3, the percentages of “Eco mark”, “Recycle”, and “Eco-bag” choices were the highest in Japan. Except for the “Recycle” and “Eco-bag” choices, the percentages of the remaining four behaviors were the lowest in South Korea.

The relationship among environmental satisfaction, pro-environmental behaviors and demographic attributes was analyzed by conducting multiple correspondence analysis. The pattern classification is shown in Figure.4. The two largest eigenvalues are 0.206 and 0.172, so the results of pattern classification can be explained by the first two dimensions. The first dimension divided “Do so always”, “Female”, “Elementary school or Middle school”, “Over 50 years” and “Lower income” choice into the negative direction, and other choices into positive direction. The second

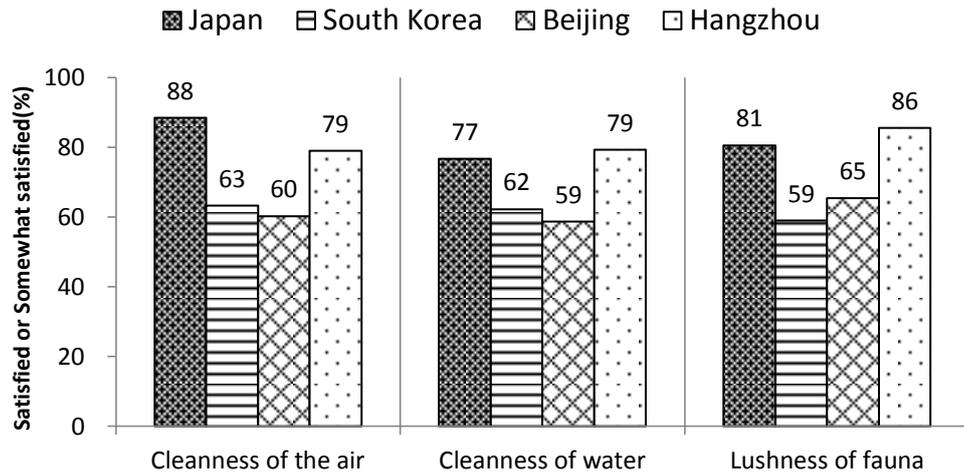


Figure.1: Marginal distribution of satisfaction with local environmental issues (Q7)

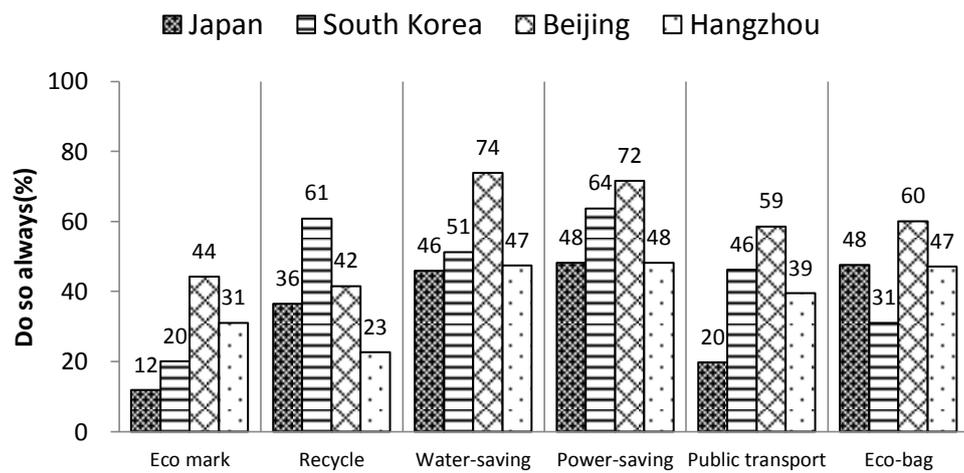


Figure.2: Marginal distribution of “always or sometimes perform pro-environmental behaviors” (Q15)

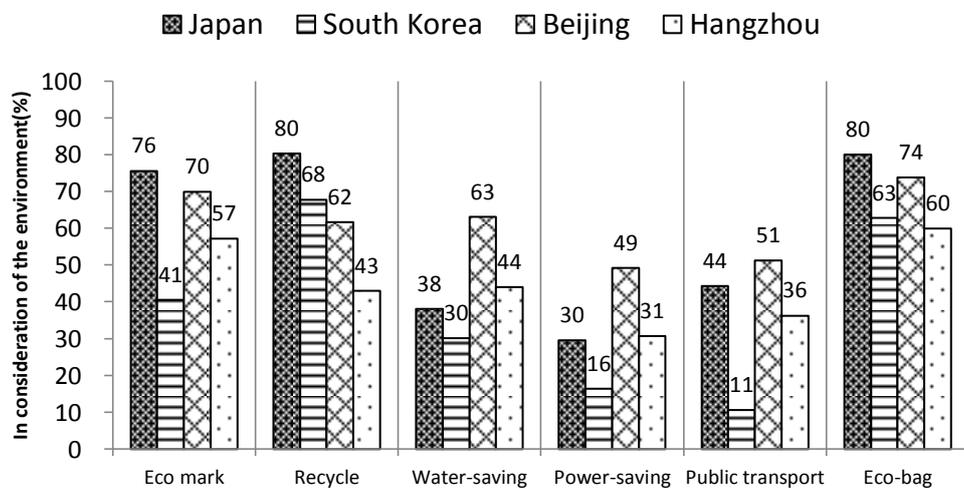


Figure.3: Marginal distribution of reason “In consideration of the environment” of performing pro-environmental behaviors (Q15-SQ)

unnecessary goods in South Korea (Fujiki & Zheng, 2012).

From Figure.4, it is clear that Women, Over 50 years, Lower education level, and Lower income are positive factors to promote pro-environmental behaviors. The similar result has been disclosed from the survey conducted by the ministry of Environment in Japan.

5. Conclusions

The local environmental satisfaction had an association with performing the pro-environmental behaviors, and it was found that people had a high tendency to practice the pro-environmental behaviors if their local environmental satisfaction was low. Except for water-saving and power-saving which related to cost living, the result has shown that people had a tendency to practice the pro-environmental behaviors if the local environmental satisfaction was high. Because the pro-environmental behaviors which be linked directly with eco-mark, recycle and eco-bag were frequently conducted for environmental conservation, and the behaviors concerning with saving water and energy were merely practiced for environmental conservation, we can conclude that people will perform the pro-environmental behaviors if their satisfaction with neighbor environment in Japan. It is assumed that it is different from the actual conditions of their environmental behaviors and satisfaction in four cities, because it is likely that people's pro-environmental behaviors are encouraged by the social system and approach to environment of each city. For this meaning, it is important to cooperate with government and company to eliminate the bias among them. As for the influence of demographic attributes, male, young generation, high income, high education have a negative association with frequencies of pro-environmental behaviors, so establishing a social system which can bring people with interest on pro-environmental behaviors benefits, should be an efficient approach.

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