ATTITUDES ON PUBLIC INVOLVEMENT IN TRANSPORTATION PLANNING PROCESS : COMPARISON BETWEEN CITIZENS OF THE UNITED STATES AND JAPAN

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Abstract: The public involvement is actively being considered in transportation planning processes because several transportation projects have been suspended or delayed due to dissenting opinions from the public. Although the United States' citizens must be provided a reasonable opportunity to comment on the proposed long range plan and programs by law, the Japanese citizens have few chances to express their own opinion and should be involved more in transportation planning. In this paper, we supposed causal model of the relationships between the willingness to participate to some events used in public involvement process and individual attitudes. We conducted the citizen survey in both the United States and Japan in order to examine these relationships and analyzed them simultaneously using structural equation modeling. The main point of discussion was the difference in two nations according to the model. The result can be referred for considering public involvement program in Japan.

1. INTRODUCTION

Involving the public has been one of the hot issues of transportation planning in Japan. From 1960's, many movements against building infrastructure such as expressway, high-speed railway "Shinkansen", and airport occurred around many places. Although a lot of researches were conducted from those days, most of them are dealt with the project development stage rather than the planning stage. At the same time, the public has a few chances to participate to process of city planning determination and environmental impact assessment. Those opportunities are notice & commenting, public meeting, public hearing and so on. However, current procedure for infrastructure project is criticized that it is too late to provide those opportunities.

Recently, the importance to involve the public from earlier stage of transportation planning is widely recognized. Earlier stage of transportation planning here means the process to make a long range plan such as master-plan. We conducted several research including Yai, T and Terabe, S. (1996) and Yai, T. and Terabe, S. (1997). In those previous studies, we learned good practices, current status and evaluation of the public involvement efforts from our original survey using questionnaires and interviews to staff working in the State Departments of Transportation and Metropolitan Planning Organizations in United States. We found the procedure in United States is clear and well-organized but we could not know the people's attitudes to be involved in.

The purpose of this study is to investigate citizen's attitude to participate in transportation planning process. Especially, we choose the one of the concerns and then discuss it in this paper. We deal with the differences of people's perception between United States and Japan, because it is more interesting to discuss it rather than explain the result itself from each citizen survey.

2. PROCESS OF TRANSPORTATION PROJECT

In United States, ISTEA (Intermodal Surface Transportation Efficiency Act of 1991) prescribed that planning organization have to provide the public with a reasonable

opportunity to comment on the long range plan or the proposed program during transportation planning and project development. In transportation planning stage, State DOT (Department of Transportation) and MPO (Metropolitan Planning Organization) usually make long range plan which covers 20 years and transportation improvement program which covers 5 years. Many kinds of public involvement techniques such as citizen advisory committee, public meeting, open house, and citizen survey, which are described in FHWA and FTA (1996), are employed throughout the process. After those plans and programs are approved and also fund for the project become available, State DOT develop each project according to environmental impact assessment process known as NEPA (National Environmental Policy Act) process. After appropriate environmental procedure, the project is proceed to acquisition of rights-of-way and construction. Of course, the same public involvement activities as planning stage are required. These process are shown in figure 1.
In Japan, there is no planning stage which is corresponding to the one of United States. As we mentioned before, the project development stage also lacks enough opportunities for the public to participate with. Now the appropriate transportation planning process is under discussion in the real field.

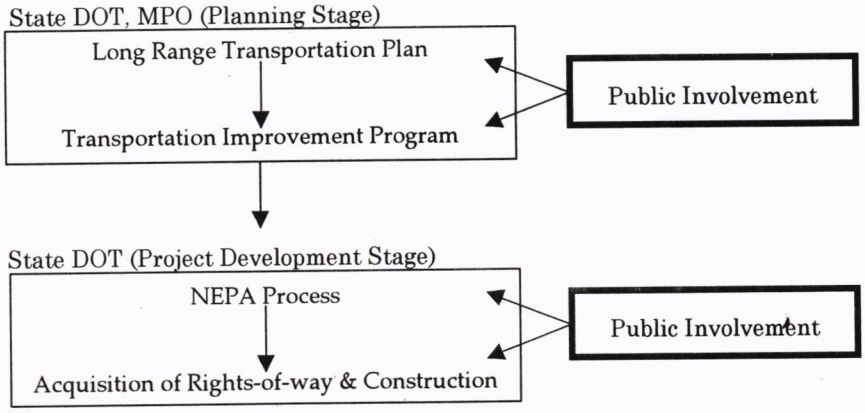

Figure1. Process of Transportation Planning in United States

3. CITIZEN SURVEY

We conducted survey in both United States and Japan in November, 1997. Those survey were basically different from each others but they contained same questions so as to compare two nations. All the questions we used in this paper is answered by 4 or 7 points scale from "Agree strongly" to "Disagree strongly" or the scale from "Very likely" to "Very unlikely".
United States survey were aimed at the citizens living in San Francisco metropolitan area and Phoenix metropolitan area by using CATI (Computer-Assisted Telephone Interview : see Richardson, A.J., Ampt, E.S. and Meyburg, A.H. (1995)). The San Francisco metropolitan area is the region where people have high attention to environment and are willing to participate in various activities. The Phoenix metropolitan area dose not have enough highway system and people are getting more involved into the transportation planning. 4278 times of phone call were made until the number of samples reaches at targeted number, 500 for each area. So the effective response rate is 23.4%.
Japanese survey were carried out by written questionnaire. The questionnaire were distributed to more than 1600 households in Yokohama city, and 1359 were returned. So the rate of effective samples is 83.0%. At first, typical three wards of Yokohama city were chosen. Then we randomly selected 20 districts from each ward and 25 households in each district were sampled to be designated as the respondents. The Yokohama city is a part of the Tokyo metropolitan area and it is suitable to compare with 2 area in United States because it is located in semi-urban area and people have higher conscious on residential environment.
The socioeconomic characteristics of the samples are listed in Table1. The difference between characteristics of two surveys such as number of samples, effective response rate

are depends on the difference of survey method and cost we could spend for each survey. Each method is popular in each country and their response rates are not unusual comparing with general results.

Table1. Socioeconomic Characteristics of the Samples

		United States	Japan
Gender	Male	49.6%	48.4%
	Female	50.4%	51.6%
Age	20-29 years of age	19.3%	9.2%
	30-39	24.7%	15.9%
	40-49	22.4%	24.1%
	50-59	14.7%	23.4%
	60 and over	19.1%	27.4%
Occupation	Full-time worker*	62.2%	40.6%
	Part-time worker	9.2%	9.5%
	Public or government officials	3.2%	3.7%
	House wife	5.5%	25.4%
	Student	3.9%	2.4%
	Retired	13.3%	15.4%
	Something else	2.8%	3.1%
No. of respondents		1002	1359
Response rate		23.4%	83.0%

* Not including public or government officials

4. STRUCTURAL EQUATION MODEL

4.1 General Model

At first, we made structure equation model that show the relationship between attitude to participate and affected factors using covariance matrix obtained from United States sample. When the variables are settled, the result of explanatory factor analysis that were separately conducted in both of United States and Japanese sample was considered.
After the preliminary analysis, eight observed variables were employed:

O-VAR1 : "I am likely to attend a public meeting to obtain information"
O-VAR2 : "I am likely to express an opinion in a public meeting"
O-VAR3 : "I am likely to read the material explaining the plan"
O-VAR4 : "I am likely to express an opinion in a citizen survey"
O-VAR5 : "I don't agree that tax money be spent on public involvement activities"
O-VAR6 : "I am proud of where I live"
O-VAR7 : "The government should take the lead in the planning of highways"
O-VAR8 : "I believe that the government carries out environmental protection activities"

Four variables from O-VAR1 to O-VAR4 express the citizen's willingness to participate with public involvement activities such as public meeting and citizen survey. O-VAR5 means the opinion to the cost spend for public involvement, and three variables from O-VAR6 to O-VAR8 show personal attitude to their residential area and government. Note that a public meeting in O-VAR1 and O-VAR2 meant the meeting a government agency holds for up to 100 residents and first, they explain their plans and then ask for the opinions of residents. A citizen survey in O-VAR3 and O-VAR4 meant the survey a government agency will hand out materials explaining the plan and questionnaires to obtain the opinions of residents. The means and standard deviations of those variables are listed in table 2. The 4 points scale was employed for variables from O-VAR1 to O-VAR5, and the 7 points scale was employed for variables from O-VAR6 to O-VAR8. The bigger value of point meant "agree" or "likely" to

the questionnaire. From comparing means and standard deviations of O-VAR1 to O-VAR4, Japanese citizens are likely to express an opinion more than United States citizens are.

Table2. Means and Standard Deviations of the Observed Variables

	United States		Japan	
	Mean	Std. Dev.	Mean	Std. Dev.
O-VAR1	2.62	1.03	2.84	0.93
O-VAR2	2.16	1.07	2.65	0.91
O-VAR3	1.63	0.83	3.18	0.91
O-VAR4	1.75	0.89	3.10	0.91
O-VAR5	2.02	0.82	2.08	0.80
O-VAR6	5.90	1.50	5.01	1.54
O-VAR7	4.92	1.86	4.34	1.93
O-VAR8	4.27	1.77	3.12	1.78

Next, we introduced five latent variables which compose structural equation model:

L-VAR1 : "Active participation"
L-VAR2 : "Passive participation"
L-VAR3 : "Opposition to using tax for public involvement"
L-VAR4 : "Attachment to their region"
L-VAR5 : "Trust in government"

L-VAR1 is observed by O-VAR1 and O-VAR2 and this means willingness to participate actively because people have to go to the place where a public meeting is held. On the contrary, L-VAR2, which is observed by O-VAR3 and O-VAR4, indicates willingness to participate passively because people don't have to go anywhere but only stay at home and answer the questionnaire. L-VAR3 is equivalent to O-VAR5 and this means the opinion itself. L-VAR4 is also correspond to O-VAR6 and this express a sense of belonging or loving to where people are living. L-VAR5 is composed by O-VAR7 and O-VAR8 and this means how the people trust in the government's role.
The model structure was decided by using United States sample and we confirmed Japanese sample also fit the same model for the most part. The reason why the model made from only United States data were employed is that it fitted better to Japanese data and the model which was constructed from Japanese data showed worse fit to the United States samples.
We used LISREL 8 for model estimation and the error variance of O-VAR5 and the one of O-VAR6 were fixed to zero for model identification.

4-2. Multi-Sample Analysis

We will analyze data from two samples simultaneously, according to a multiple-group LISREL model with some parameters constrained to be equal over United States and Japanese sample. We don't describe this method in detail here (see ex. Joreskog, K.G. and Sorbom, D. (1993)) but we use same observed and latent variables and same relationship to construct the model. Five models are estimated by changing the constraint of parameters. For example, the model 0 is constructed that the every parameters are different between United States and Japan and all parameters of two samples are same in the model 4. The model description and the result are shown in table3.

The chi-square test for model comparison is not work because the total number of samples reached to 2361. But we decided to choose the model 0 for two reasons : (1) it is better to set parameters free than to constrain them for the purpose of this study which is to compare two samples, and (2) other goodness-of-fit statistics showed that the model 0 has the best score among five models. The result of model 0 is shown in figure 2. The parameters written here are standardized solution in which both observed and latent variables are scaled to have variance equal to one, so as to compare two coefficients. The goodness-of-fit statistics for this model are GFI = 0.98, RMR = 0.046, and RMSEA = 0.037, and those values showed

the model 0 is reasonable.

Table3. The Result of Multi-Sample Analysis

	Constraint of Parameters			Chi-square	Degree of Freedom
	Path Coefficient	Covariance of Latent Exogenous Variables	Covariance of Latent Endogenous Variables		
Model 0	---	---	---	135.46	32
Model 1	Common	---	---	208.76	40
Model 2	Common	Common	---	222.40	43
Model 3	Common	---	Common	281.01	43
Model 4	Common	Common	Common	1029.74	52

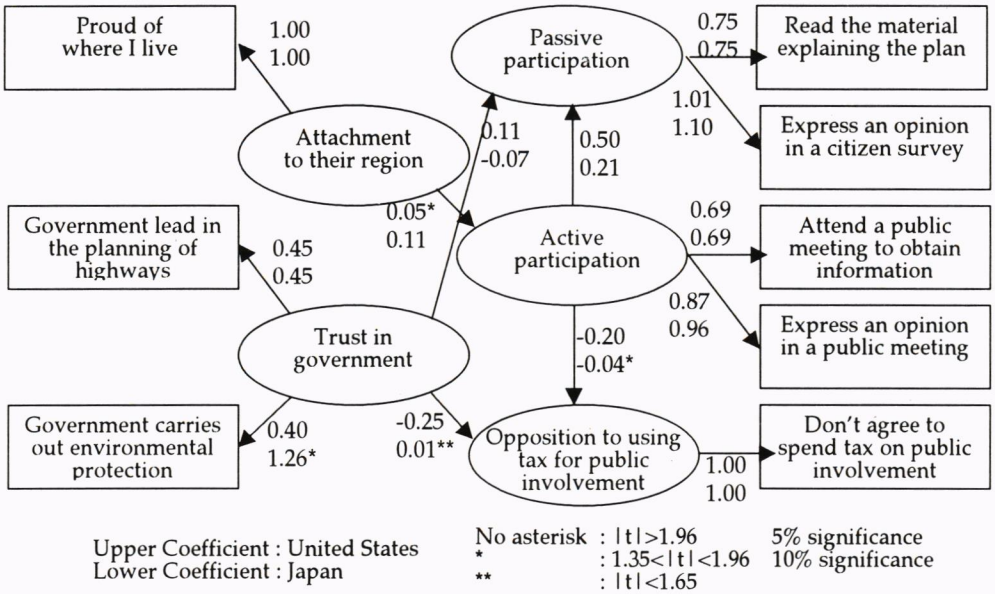

Figure2. Comparison between Estimates of the United States and Japan

5. DISCUSSION

In order to obtain insight into the difference between attitude of the United States and Japan, we compare each path coefficient from latent variables to observed variables at first.
(a) The path coefficient from "Trust in government" to "Government carries out environmental protection" of Japanese sample is about three times as big as the one of United States sample, although the level of significance is a little small. About 74% of "Trust in government" of Japanese sample is defined by "Government carries out environmental protection", considering that the path of both United States and Japan from same latent variable to "Government lead in the planning of highways" has same coefficient. This may mean that Japanese citizens trust in government by not expecting the leadership or the administration. They just don't want to touch the difficult things.
(b) The two Japanese coefficients from "Active participation" to "Express an opinion in a public meeting" and from "Passive participation" to "Express an opinion in a citizen survey" are bigger than the ones of United States. The mean of those two Japanese observed variables are also bigger than United States (see table2). They indicate that the Japanese citizens may hope to express an opinion more than the United States citizens do. From this

interpretation, we can guess that the Japanese has little opportunity to express an opinion in transportation planning process.

Next, let's compare the relationships between latent variables.
(c) "Passive participation" is affected positively by "Active participation". So people who is likely to participate in public meeting tend to cooperate in answering to the distributed questionnaire. This tendency is stronger in United States than in Japan.
(d) The path coefficient from "Trust in government" to "Passive participation" is positive in United States and negative in Japan. This means that United State citizens are likely to answer to the citizen survey because they trust in government. On the other hand, the Japanese citizens don't want to express an opinion when they trust in government. They also seem to feel it is troublesome to participate passively considering discussion (a).
(e) The path coefficients from both "Active participation" and "Trust in government" to "Opposition to using tax for public involvement" have same tendency between United States and Japan ; negative big values in United States and non-significant values in Japan. So in United States, people who trust in government and participate in such as meeting actively tend to agree to spend tax money on public involvement activities. However, Japanese has no relationships around spending tax.
(f) We expected that the people are interested in the situation such as transportation around the region and then they are willing to participate in some of public involvement activities, if they like where they live. However, "Active participation" is not affected by "Attachment to their region" in United States. This may related to the difference in the sense of living which is whether the one want to live in the same place for long time or ownership of land which is whether the one stick to land. So these concepts may be discussed for only Japanese.

6. CONCLUSION

In this paper, we learned to know the differences of attitudes to be involved in transportation planning between citizens of United States and Japan by analyzing the two samples simultaneously with structural equation model. The key result of this study are that Japanese citizens are willing to express an opinion more than United States citizens are, and that meaning of trust in government is different from each nations, and that the attachment to where people live is important for only Japanese, and the usage of tax for public involvement activities has no relationship with participation in Japan. These information can be referred for considering public involvement program in Japan.

REFERENCES

FHWA and FTA (1996) **Public Involvement Techniques for Transportation Decision-Making.** FHWA-PD-96-031
Joreskog, K.G. and Sorbom, D. (1993) **LISREL 8**. Scientific Software International Inc., Chicago.
Richardson, A.J., Ampt, E.S. and Meyburg, A.H. (1995) **Survey Methods for Transportation Planning**.
Yai, T. and Terabe, S. (1996) Public Involvement Process for Transportation Planning and Project Development in the U.S. **City Planning Review 31**, 403-408. (in Japanese)
Yai, T. and Terabe, S. (1997) A Diversity of Public Involvement Efforts in the U.S. Metropolitan Transportation Planning **City Planning Review 32**, 565-570. (in Japanese)