

Public Perceptions on National ID System in Japan

So Morikawa

Abstract—Although Japanese government finally passed the bill on introduction of national ID system in 2015; people are reluctant to register to the system. We report results of online survey we conducted on public perceptions on new national ID system (N=2000). Our findings are twofold: (1) Japanese citizens actually do not have strong opinions on national ID system, and their perception towards merits and demerits of national ID system can be divided into 3 factors (perception of increased tax burden, anxiety about privacy leakage, and perception towards advantages of installing the system); (2) These factors have significant relationship with support for the new system, and people who are willing to share their personal information for the society tend to support the system. Through the analysis, some practical implications for policy makers are also drawn.

Index Terms—National ID, policy perception, privacy, e-government.

I. INTRODUCTION

In Japan, nation-wide, standardized and electronically administrated national identification numbers (ID) are not utilized in policy implementation mainly because of public concerns on privacy concerns. As a result, each government service issues different IDs for their service delivery, which entails huge cost of tracking those numbers when they need to match the demand and supply of government services. After the long attempts of Japanese government to install the electrical ID system for realizing efficient policy implementation, the government finally passed the bill on introduction of national ID system in 2015. Still, while the government accordingly launched a new policy called “My Number”, people are reluctant to register to the system, and the registration rate is about 10% of the whole population as of the end of 2016.

We report results of online survey we conducted on national ID system newly installed in Japan (N=2000), focusing on how the people perceive merits and demerits (or risks) followed by the installation of national ID and how these perceptions related to their support for the policy.

Our findings are twofold: (1) Japanese citizens do not have strong opinions on national ID system, and their perception towards merits and demerits of national ID system can be divided into 3 factors (perception of increased tax burden, anxiety about privacy leakage, and perception towards

advantages of installing the system); (2) These factors have significant relationship with support for the new system, and people who are willing to share their personal information for the society tend to support the system.

Through the analysis, we also drew some practical implications for policy makers. Although the issue regarding protection of privacy seems controversial in media and in political debate on this issue, not only decreasing “anxiety about privacy leakage”, but also decreasing “perception of increased tax burden” and raising “perception towards advantages of installing the system” seem to be effective to increase citizens’ support toward the system.

II. PERCEPTIONS AND ACCEPTANCE OF POLICIES WITH TECHNOLOGICAL RISKS

In general, policies utilizing new technologies sometimes raise public fear on the policy outcomes (in electronic ID system, information leakage and fraud) and these concerns influence overall policy perception and its acceptance. Scholars have studied this issue on technology related policies like nuclear waste disposal [1] and genetically modified foods [2]. In these policies, trust in government and merits (or risk) perception toward related policies are considered to decide success and failure in persuading the citizens to accept entailing technological risks considering the potential benefits of the policy.

Trust in government is considered to be one of the most important elements in successful policy implementation for a long time [3], [4], but we need careful investigation on this concept when it comes to the consideration on relationship between trust and policy perceptions (including acceptance). Relationship between trust in government and policy perceptions can be understood in two different ways [5], [6].

On one hand, trust in government is viewed as one of the influencing factors deciding citizens’ attitudes and behaviors related to the particular policies [7], [8]. Here, trust in government often means trust toward the government in general, while the level of the government (national, state, municipal, local, etc.) which matters most is often different among policy areas.

On the other hand, trust in government itself is viewed as one barometer of policy perception or satisfaction. Previous research investigating the relationship among trust in government, government performance and people’s satisfaction with public services [5], [6]; [9], [10] implies that trust in government does not always mean trust toward the government in general, but they are influenced by government performance or satisfaction with public services and can be interpreted as a variable that represents people’s acceptance towards policies in some contexts.

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TABLE I: SURVEY QUESTIONS AND DESCRIPTIVE STATISTICS

Questions (Original is in Japanese)	Average (s.d.)
Sex (Male/Female)	1001/999
Age	43.5 (14.8)
(Trust in government) "I can trust in government."	2.11 (0.805)
"Are you for or against the introduction of national ID ('My Number')?"	2.28 (0.855)
merit perceptions 1	
(1) "Tax revenue will be increased."	2.71 (0.883)
(2) "People's financial burden will be increased."	2.76 (0.858)
(3) "National ID can correct unfairness."	2.53 (0.894)
(4) "Number of frauds will increase."	3.38 (0.756)
(5) "I have concerns on possible influences on my tax payment."	2.71 (0.905)
(6) "I have concerns on protection of privacy."	3.34 (0.815)
(7) "I am reluctant to national ID because it feels like being watched."	3.01 (0.909)
(8) "It is good news because we can reduce troublesome procedures in government offices."	2.64 (0.866)
merit perceptions 2: distributive aspects	
"If it is necessary for my treatment, I can accept a hospital to share my medical information taken in other hospitals"	3.10 (0.831)
"If it is necessary for education of medical students, I can accept a hospital to share my medical information taken in other hospitals"	2.78 (0.874)
Observations	2000
For trust in government, 4: For, 3: For if I were to choose, 2: Against if I were to choose, 1: Against For the others, 4: Agree, 3: Agree if I were to choose, 2: Disagree if I were to choose, 1: Disagree	

In our analysis below, we adopt both of these two views: we include trust in government as a control variable as well as considering important factors which decides policy perceptions in general including trust in government, satisfaction with public services.

One of such factors that decides policy perceptions is merit (or risk) perceptions on possible policy outcomes [11]. While electronically administered IDs can contribute to make some policy implementation efficient, concerns on privacy issues and fear on personal information leakage are often expressed especially in mass media. Also, people's merit (or risk) perceptions can be influenced by merit-risk distribution: how much and which part of the population can get its benefits and must bare its costs. While some papers in Japanese have already studied people's perception toward national ID system [12]-[13], our focus on the relationship between support toward national ID and its merit perception has not been explored yet.

III. METHOD

A. Online Survey

From November 18th to 24th in 2015, we conducted an online survey to 2000 residents in Japan. 2000 samples are randomly selected from monitors of Cross Marketing Inc., being stratified based on their age (6 generations), sex, residential area (7 regions) and occupation (6 types).

B. Model and Measurement

Since our dependent variable, support for national ID system, is measured in 4-point scale, we adopted ordered-logit model for our estimation (estimations are conducted by R). Our key independent variables are merit perceptions derived from the factor analysis explained below. We controlled variables of sex, age, trust in government and perceptions for distributive aspects of information sharing.

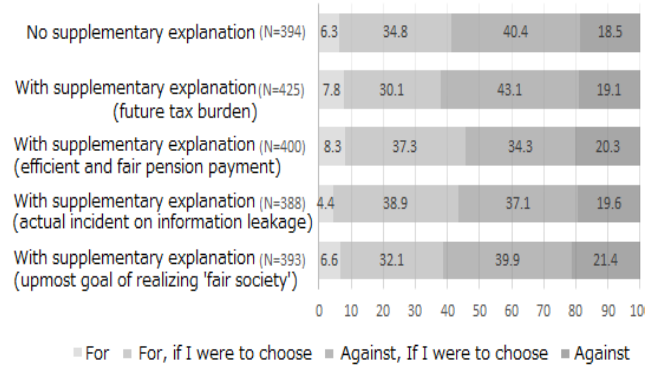


Fig. 1. Support for national ID system.

TABLE II: RESULT OF FACTOR ANALYSIS ON MERIT PERCEPTIONS

Questions	Factor 1	Factor 2	Factor 3	Uniqueness
(6) privacy concerns	0.014	0.883	-0.021	0.207
(4) fraud concerns	0.102	0.647	0.05	0.478
(7) being watched	0.497	0.357	-0.112	0.396
(5) my tax payment	0.531	0.104	0.063	0.626
(2) people's burden	0.742	0.009	-0.023	0.442
(1) increase revenue	0.417	-0.111	0.483	0.618
(8) reduce procedures	-0.347	0.167	0.499	0.692
(3) correct unfairness	0.042	-0.052	0.704	0.504
Factor contribution	0.173	0.172	0.125	
Accumulated contribution	0.173	0.346	0.471	
Correlations	1.000	-0.0643	0.649	
	-0.064	1.000	-0.073	
	0.649	-0.073	1.000	

Table I summarizes translation of the survey questions and descriptive statistics for each variable included in the model.

Support for national ID system is measured by responses to the question: "Are you for or against the introduction of national ID ('My Number')?" after showing a brief explanation of the aim of national ID. The explanation includes three possible outcome of the introduction of national ID system (simplification of administrative process, realizing fair tax burden among citizens, achieving efficient government), which appear in the government public relation materials like website. While we admit that this explanation on outcome of the policy might have biased the responses: the answers do not necessarily reflect their "true" support for the introduction of national ID, we think that practically it is more important to measure how much they support the policy when they hear the government's explanation on its aims.

Additionally, to see whether the wordings in explanation of the system affects to the answers, we divided samples into five groups with and without supplementary explanation about national ID, emphasizing on future tax burden; efficient and fair pension payment; the actual incident on information leakage occurred in Japan Pension Fund; and its upmost goal of realizing 'fair society'.

Fig. 1 shows the distribution of support for national ID system. Although public concerns on privacy issues regarding national ID is often mentioned in mass media, our samples actually do not have strong opinions on national ID system. On average, they are suspicious on the introduction of national ID system, but large number of people are either "for if I were to choose" or "against if I were to choose".

TABLE III: RESULT OF ORDERED-LOGIT ESTIMATION

<i>Outcome variable: Support for national ID system</i> (4: For, 3: For if I were to choose, 2: Against if I were to choose, 1: Against)		
Female	-0.279*** (0.091)	-0.279*** (0.091)
Age	0.007** (0.003)	0.004 (0.003)
Trust in Government	0.542*** (0.063)	0.517*** (0.063)
Factor 1 (perception of increased tax burden)	-1.375*** (0.065)	-1.377*** (0.065)
Factor 2 (anxiety about privacy leakage)	-0.696*** (0.055)	-0.776*** (0.057)
Factor 3 (perceptions of advantages)	1.347*** (0.070)	1.279*** (0.071)
Acceptance of Information Sharing		
Individual Use		0.296*** (0.074)
Social Use		0.130* (0.068)
thresholds:		
3—4	-2.104*** (0.280)	1.288*** (0.310)
2—3	-1.178*** (0.270)	-2.064*** (0.306)
1—2	-3.836*** (0.285)	-4.753*** (0.323)
McFadden R-sq.	0.243	0.251
Log-likelihood	-1871.852	-1850.094
AIC	3761.704	3722.188
BIC	3812.112	3783.798
N	2000	2000

*p<0.1; **p<0.05; ***p<0.01 (Standard errors in parentheses)

We can also see that change in wording used in the explanation (i.e. adding supplementary explanation) does not affect response much. Therefore, in the following analysis, we pool all the data together while we confirm that almost same results can be obtained even we restrict the samples with certain wordings in explanation of the system.

Merit perceptions on national ID system is conceptualized and measured in two ways. First, we asked the respondents how much they agree with the sentences on possible merits and risks after introduction of national ID, which are shown in Table I. Each agreement is measured in 4-point scale and we conducted factor analysis to find out unobserved potential factors which composes these attitudes toward the statements (maximum likelihood, promax rotation, and number of factors is set to 3 based on eigenvalues).

The result of the factor analysis is shown in Table II (exact translated wording of each question is shown in Table I, and values are shaded when factor loadings are more than 0.3). The first factor mainly consists of “National ID can correct unfairness” and “I have concerns on possible influences on may tax payment”. We name it “perception of increased tax burden”. The second factor mainly consist of “Number of fraud will increase” and “I have concerns on protection of

privacy”. We name it “anxiety about privacy leakage”. These two factors are predicted to negatively affect people’s support for introduction of national ID system. Finally, the third factor mainly consist of “National ID can correct unfairness”, “It is good news because we can reduce troublesome procedures in government offices”. We name it “perception towards advantages of installing the system” and it is predicted to positively affect people’s support for introduction of national ID system.

The second merit perception, which captures distributive aspect, is measured by two questions related to the information sharing. We asked how much they agree with the following two sentences: “If it is necessary for my treatment, I can accept a hospital to share my medical information taken in other hospitals” and “If it is necessary for education of medical students, I can accept a hospital to share my medical information taken in other hospitals”. These two questions capture the acceptance of sharing private information (and especially sensitive medical information) for the sake of individuals and of general public. Both of the acceptance are expected to have positive relationship with support for national ID system.

IV. RESULTS

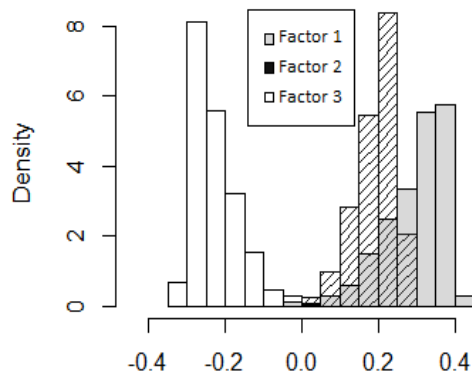
Table III shows our estimation results. All of the three variables on merit-risk perceptions derived in the previous section (perception of increased tax burden, anxiety about privacy leakage, and perception towards advantages of installing the system) have statistically significant effects in predicted directions. While those who have high demerit perception (perception of increased tax burden and anxiety about privacy leakage) tend to be less supportive for national ID system, those who have high merit perception tend to be more supportive for it. Perceptions on distributive aspect on information sharing and trust in government also have significant effects in predicted directions: those who have high trust in government and high acceptance of information sharing tend to support national ID system more. Female tend to be against national ID system, while we cannot find a stable relationship between age and support for national ID system.

Among the three factors on merit/demerit perceptions, the estimated coefficients have larger values in “perception of increased tax burden” and “perception towards advantages of installing the system” than in “anxiety about privacy leakage”. Now the government wants to change citizens’ perceptions toward the policy through their public relation strategies to get their support for its implementation, but it is not enough to see these coefficients since it does not tell us how much meaningful shifts the government can realize when they succeed in changing merit/demerit perceptions of the citizens. To see how much the degree of merit perceptions influence support for the national ID system among average citizens, we simulated the predicted distribution of support changing each factor score value from 75 percentile to 25 percentile and keeping other variables on sample average. We used R package Zelig for running simulation [14], [15].

TABLE IV: SIMULATION RESULT: PREDICTED PROBABILITIES

<i>Simulated difference in predicted probabilities of responses for options in support question when each factor score is changed from 75 percentile to 25 percentile</i>				
	Factor 1 (perception of increased tax burden) 0.6599 → -0.6207		Factor 2 (anxiety about privacy leakage) 0.7690 → -0.6700	
	median	[2.5 %, 97.5 %]	median	[2.5 %, 97.5 %]
4: For	0.039	[0.031, 0.047]	0.023	[0.018, 0.029]
3: For if I were to choose	0.316	[0.108, 0.395]	0.205	[0.066, 0.267]
2: Against if I were to choose	-0.184	[-0.380, 0.199]	-0.128	[-0.258, 0.138]
1: Against	-0.176	[-0.422, -0.001]	-0.101	[-0.285, -0.001]
	Factor 3 (perceptions of advantages) 0.5117 → -0.5093			
	median	[2.5 %, 97.5 %]		
4: For	-0.028	[-0.034, -0.022]		
3: For if I were to choose	-0.241	[-0.303, -0.078]		
2: Against if I were to choose	0.159	[0.157, 0.290]		
1: Against	0.119	[0.001, 0.321]		

*Values of other variables are kept sample average.



Simulated Difference in predicted probabiles of obtainign response of '3: For if I were to choose' when each factor score is changed as in Table IV

Fig. 2. Simulation result: Predicted probability of response for option 3.

This analysis simulates what happens if the government succeeds in shifting the average citizen's merit/demerit perception level from what our sample on 75 percentile has to the one on 25 percentile in each factor. The results are shown in predicted changes in probabilities to choose each level of our dependent variable, support for national ID system, when a citizen with average levels for all variables except for the focused merit-risk (demerit) perceptions, which is set to 75 percentile of our sample, is driven to have a value of 25 percentile of our sample in the focused merit/demerit perceptions keeping the other variables on sample average.

Table IV shows our simulation results. As we observed in Table III, when factor values on two factors named "perception of increased tax burden" and "anxiety about privacy leakage" decrease, the probability of acquiring supportive response increases and that of acquiring negative response decreases. The corresponding tendency can be observed in the other factor named "perception towards advantages of installing the system". The simulation results show that the changes in each factor value yield statistically significant changes in probabilities of choosing options except for an option "against if I were to choose".

For example, considering actual political process, in which persuading the majority of people is critical in realizing policies, it is important to see the change in predicted probability of choosing an option "3: for if I were to choose" is important. If the average citizen with "perception of

increased tax burden" level of 75 percentile of our samples change their "perception of increased tax burden" to the level of 25 percentile of our samples, (s)he 31.6% more likely to choose "3: for if I were to choose" for their support levels for national ID system (in the median value of simulated results). In the same manners, if the average citizen with "anxiety about privacy leakage" level of 75 percentile of our samples change their "anxiety about privacy leakage" to the level of 25 percentile of our samples, (s)he 20.5% more likely to choose "3: for if I were to choose" for their support levels for national ID system; if the average citizen with "perception towards advantages of installing the system" level of 75 percentile of our samples change their "perception towards advantages of installing the system" to the level of 25 percentile of our samples, (s)he 24.1% less likely to choose "3: for if I were to choose" for their support levels for national ID system.

Table IV only shows our simulation results in terms of median and 2.5 and 97.5 percentiles for predicted differences in probabilities that we obtain each support level. Fig. 2 shows the distribution of simulated changes in choosing an option "3: for if I were to choose" for their support levels for national ID system, when each factor score decreases from 75 percentile to 25 percentile, keeping other variables on sample average. (The simulation conducted is same as the one whose result on median and 2.5 and 97.5 percentiles is shown in Table III with shade.)

When we compare how much the change in factor score from 75 percentile to 25 percentile are different among three factors, decreasing "perception of increased tax burden" yields more increased probability of acquiring partially supportive "for if I were to choose" option than changes in other two factors do. The result implies that the expected increased support to the policy when the government succeeded in decreasing "anxiety about privacy leakage" can be achieved through raising "perception towards advantages of installing the system" and even more through mitigating "perception of increased tax burden" of the people.

Since we need to incorporate the costs to change people's merit-risk perceptions on the policy, it is difficult to draw implications for policy makers on the most effective way to persuade people to accept the new system. Nevertheless, it shows possibilities of public relation strategies other than mitigating "perception of increased tax burden" of the people, while we observe concerns on privacy issues and fear on personal information leakage are the most often in mass media regarding the introduction of national ID in Japan as we mentioned above.

V. CONCLUSION AND DISCUSSION

We reported results of online survey we conducted on national ID system newly installed in Japan, focusing on how the people perceive merits and demerits (or risks) followed by the installation of national ID and how these perceptions related to their support for the relevant policies.

Our findings are twofold: (1) Japanese citizens do not have strong opinions on national ID system, and their perception towards merits and demerits of national ID system can be divided into 3 factors (perception of increased tax burden,

anxiety about privacy leakage, and perception towards advantages of installing the system); (2) These factors have significant relationship with support for the new system, and people who are willing to share their personal information for the society tend to support the system.

Through the analysis, we can draw some practical implications for policy makers. Japanese government seems to have spared much efforts to mitigate concerns on privacy issues partly because media have focused this issue for long time. Our result shows that this public relation strategy is reasonable. People's demerit perception on anxiety about privacy leakage in fact tend to be connected with less supportive attitude for national ID system. However, the other two factors on merit-risk (demerit) perceptions also have significant effects in deciding the support levels of our samples: Those who have high demerit perception on increased tax burden tend to be less supportive for national ID system, and those who have high merit perception tend to be more supportive for it.

This implies that an option the government can take for making supporting environment in introducing national ID is to emphasize individual benefits of the system and to reduce peoples' concerns on possible influences on their tax payment. When we compare how much the change in factor score from 75 percentile to 25 percentile are different among three factors, decreasing "perception of increased tax burden" yields more increased probability of acquiring partially supportive "for if I were to choose" option than changes in other two factors do. This implies that emphasizing benefits and reducing concerns on tax payment can be as effective in persuading people to support the system as mitigating peoples' fear and anxiety about information leakage. Of course, the effect expected with emphasis on benefits cannot be obtained without realizing actual cut in administrative procedures which citizens have trouble with in government offices.

For another implication, public policies in general yield both of individual benefits and social benefits (the same applies for costs or risks), and they have to have their 'public' benefits in nature. Policies related to the introduction of national ID are not exceptions. National ID system holds this characteristic since it serves as a basic infrastructure for providing public services in efficient ways. Our result shows that not only people with high acceptance in sharing information for *private* interest but people with high acceptance in sharing information for *public* interest have a tendency to support for national ID system. Our results indicate that both types of benefits should be considered when policy makers design public relation strategies. People are reactive to persuasive discussion which emphasize public benefits of national ID, and strategies not only focusing on public concerns on privacy issues but emphasizing public benefits are worth considering.

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