Government size and trust

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Abstract. This paper uses individual level data (the Japanese General Social Survey, 2001) to examine how government size influences generalized trust. After controlling for income inequality, population mobility, city size and various individual characteristics, I found: (1) Using all samples, government size is not associated with generalized trust, and (2) After splitting the sample into worker and non-worker samples, government size does not influence generalized trust for non-workers whereas it significantly reduces generalized trust for workers. This suggests that workers, through their work experience, might confront the greater bureaucratic red tape coming from "larger government", leading to negative externality effects on the trustful relationship in the labor market.

Keywords: Government size; Generalized trust.
JEL classification: D30, Z13

1. Introduction

A growing number of researchers have drawn attention to the influence of social capital on various facets of human life (e.g., Putnam 1993, 2001; Fukuyama, 1995; Uslaner, 2002). It is widely argued that interpersonal trust, considered as a kind of social capital, plays an important role in the enhancement of collective action and therefore deviation from the 'prisoner's dilemma' (e.g., Putnam 1993; Hayami, 1995; Sønderskov 2009; Yamamura 2008b). Transaction costs are anticipated to be saved when people trust each other. Accordingly, economic efficiency is improved, resulting in economic growth (e.g., Knack, 1997; Knack & Keefer 1997; Whiteley 2000; Zak & Knack, 2002; Beugelsdijk et al, 2004)[1]. Trust is thus regarded as a crucial element in economic development. How and why is trust formed in society is a critical question when considering the foundation of economic development. A growing number of reports have tackled this question (Glaeser et al., 2000; Alesina and La Ferrara 2002; Berggren and Jordahl, 2006; Bjørnskov 2006; Leigh, 2006 a, 2006b; Chan 2007).

Previous work has mostly shed light on the effect of socio-economic heterogeneity on trust, finding that people are less likely to trust others in more heterogeneous societies (e.g., Alesina & La Ferrara, 2002; Bjørnskov 2006; Leigh, 2006b; Gustavsson & Jordahl 2008) [2]. Besides heterogeneities concerning race, language, and economic inequality, there are other important factors influencing trust from the view point of political economy. Trust can be regarded as a function of institutions and policies. Government decision-making impedes individual decision making in the market when government spending increases relative to voluntary spending; the government is thought to interrupt market activity. A market oriented economy leads to the formation of trust, stimulating further exchange s(Berggren & Jordahl, 2006). On the other hand, as found by Goel & Nelson (1998), government size is positively associated with the prevalence of corruption, since a larger government leads to greater bureaucratic red tape[3]. The perception of corruption seems to hamper economic activities such as investment (Mauro 1995). Government size is negatively associated with economic growth[4]. Various institutional conditions are important to enhance market transactions

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[1] Trust is associated with various economic outcomes such as tax compliance (Lassen, 2007) and loan repayment (Cassar, 2007).

[2] As for economic inequality, in contrast to the United States, Leigh (2006b) found no apparent association between trust and inequality across Australia.

[3] In transition countries, a larger government size reduces corruption (Goel and Budak 2006). Using various measures of government size, the relationship between government size and corruption is not stable (Glaeser & Saks 2006).

[4] The conjecture that resources are allocated less efficiently by larger governments,

and the formation of trust (Berggren & Jordahl, 2006)[5]. Corrupt activity by public officials erodes the institutional conditions required to vitalize economic transactions along with fostering trust.

These arguments lead me to conjecture that a larger government results in lower trust[6]. However, little is known about how government size affects trust. Berggren & Jordahl (2006) used cross country data to investigate the effect of government size on trust, but found no stable relationship between government size and trust. Closer examination seems needed to explore the impact of government size because this effect varies according to the particular situations confronted by an individual. Government size is thought to have a greater effect on workers than non-workers, since workers more frequently participate in market transactions. Furthermore, the perception of workers depends on whether they belong to the public or private sectors. This paper, therefore, attempts to separately investigate the effect of government size on trust for workers and non-workers. To this end, I constructed data by combining prefecture and individual level data (the Japanese General Social Survey, hereafter JGSS), and used this data for statistical analyses. The major finding of this paper is that government size reduces the generalized trust of workers, but does not affect that of non-workers.

The remainder of this paper is organized as follows: Features of Japanese society and the relationship between government size and generalized trust are briefly reviewed in Section 2. Section 3 explains the data and methods used. Section 4 discusses the results of the estimations. The final section offers concluding observations.

2. Overview of features of Japanese society

2.1. Homogeneity and community mechanism

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leading to lower economic growth is well supported (e.g., Landau, 1985; Peden & Bradley, 1989; Dar & AmirKhalkhalim 2002; Fölster & Herekson, 2002). On the other hand, some researchers find no discernable relationship between government size and economic growth (e.g., Ram, 1986; Bairam, 1990; Easterly and Rebelo, 1993; Mendoza et al., 1997).

[5] The conditions are the security of property rights, access to sound money, and freedom to exchange with foreigners.

[6] Analyzing the influence of government size on economic outcome is thought to be a major issue in the field of political economics. There are many reports concerning the relationship between government size and economic growth (e.g., Peden & Bradley, 1989; Dar & Amirkhalkhali 2002; Angelopoulos et al., 2008). Recently, government size has been investigated in terms of individual perception. For instance, researchers have attempted to tackle the question of how and the extent to which the degree of life satisfaction is affected by government size (e.g., Bjørnskov et al., 2007; 2008a; 2008b, Yamamura 2009a).

Japan is known as a racially homogeneous society (Index Corporation, 2006)[7], being in the country group with the lowest inequality (Tachibanaki, 2005: Chapter 1). Assuming that people have a greater tendency to trust each other in a more homogeneous society (e.g., Alesina and La Ferrara, 2002; Uslaner 2002; Bjørnskov 2006), this characteristic of Japan leads me to conjecture that the degree of trust in Japanese society is high. "The psychological basis of mutual trust could further be strengthened by incorporating personal elements in business transactions, such as the exchange of gifts and attendances at weddings and funerals" (Hayami 2001, 290). Accordingly, Japanese society is characterized not only by racial and economic homogeneity, but also by tightly-knit communities, resulting in interdependent trust being generated. Trust formed through long-term transactions made a great contribution to Japan's industrial development in the post-war period (Asanuma, 1989; Yamamura 2009b). Hence, when it comes to Japanese society, a high degree of trust appears in interpersonal relationships within tightly-knit communities or a business groups.

Reports (Uslaner 2002; Bjørnskov 2006) have categorized trust into generalized and particularized kinds of trust[8]. "The central idea distinguishing generalized from particularized trust is how inclusive your moral community is." (Uslaner, 2002: 26-27). People with generalized trust have positive views toward both their own in-group and out-groups, whereas those with particularized trust have positive views of their own in-group but a negative attitude toward groups to which they do not belong[9]. Generalized trust can be extended to strangers while particularized trust might be restricted to within a well-established personal network. Global economic integration appears to lead to national social disintegration and therefore the collapse tightly-knitted communities (Rodrik 1997). Hence, changes of economic circumstance would weaken the competitiveness of firms that have relied on particularized trust in the world market. In this situation, generalized trust becomes more important than particularized to retain competitiveness.

2.2. Generalized trust

[7] The component ratio of Japanese in the 1996 population was 99 % and suggests that Japan can be considered as a racially homogeneous society (Index Corporation, 2006).
[8] Banfield (1958) provided a similar argument based on the case of a Southern Italian Village.
[9] Yamagishi & Yamagishi (1994) defined what I called particularized trust as "mutual assistance". Japanese society characterized by preferential treatments given to in-group members provides mutual assurance in closed and tightly-knit relationships (Yamagishi & Yamagishi, 1994).

I now focus on how prefecture government size is related to the degree of average generalized trust in each prefecture. Relationships between average trust and government size is shown in Figure1 (1), calculated using all samples. For closer examination, I divide the sample into workers and non-workers. The relationships are shown in Figure 1 (2) and (3), which are calculated from the workers and non-workers samples, respectively.

A cursory examination of Figure 1(1) shows a slightly negative association between government size and average trust. This relationship is unchanged in Figure 1 (2), while a slightly positive relationship is observed in Figure 1 (3). These suggest that government size has a detrimental effect on the degree that workers generally trust others, but does not decrease the generalized trust of non-workers.

The supply of public goods is determined through political processes, leading supply to be different from the optimum level in terms of economics. It is widely acknowledged that bureaucrats in the government sector have incentives to maximize their budgets (Niskanen 1971). The absence of a profit incentive induces government organizations to be less efficient (Buchanan & Wagner, 1977). As a consequence, a government tends to become oversized and produce an oversupply of unnecessary public goods. As the cost for the supply of public goods is financed through taxation, citizens are likely to criticize government policy when the cost of public goods outweighs their benefit. However, a government has abundant information, which is difficult for ordinary people to access. As a result of this information asymmetry, "government can easily manipulate information to inflate the value of the public goods they want to supply" (Hayami 2001, p.227). Such manipulation is thought to be easier in the economic developing stage, since the average education level of the population is lower and the mass media is not sufficiently developed.

3. Data and method

3.1. Data

This paper uses JGSS data, which are individual level data. The JGSS surveys adopt a two-step stratified sampling method and were conducted throughout Japan in 2001. JGSS is designed to be the Japanese counterpart of the General Social Survey in the United States. This survey asks standard questions concerning an individual's and his/her family characteristics through face-to-face interviews. This data covers information related to the one's marital and demographic (age and gender) status, level

of income, years of schooling, age, number of children, job category[10], size of residential area, prefecture of residence, and opinion about generalized trust[11]. According to the population size of the geographical area, sample points were divided into three groups; (1) large cities, (2) other cities, and (3) villages and towns.

The survey collected data from 2790 adults, between 20 and 89 years-old. This paper deals with the various individual characteristics noted above. Hence, as shown in Table 2, the samples used for estimations range between 1611 and 2741. The variables used for regression estimations are shown in Table 1, which indicates mean values. Years of schooling of workers is 12.1, which is larger than that of non-workers, indicating that higher educated people are more likely to work. The Age of workers is 46.4, which is about 15 years less than that of non-workers. This partly reflects the fact that non-workers include retired people. It is interesting that marital status is almost same between workers and non-workers, whereas the experience of divorce for workers is distinctly larger than for non-workers.

With respect to generalized trust, considered as a crucial independent variable, respondents were all asked: “Generally speaking, would you say that most people can be trusted?”. The possible responses to this question were "no", "depends", and “yes". Figure 2 presents the distribution of generalized trust and shows that most male responses were ‘depends’. Numbers responding ‘Yes’ are slightly larger than the ‘No’ responders.

As for the prefecture level data, Gini, immigration rate, and government size are used. About one-third of local government revenues consist of local transfer and allocation taxes and national government disbursements (Doi & Ihori 2009, p.162). Heavy financial support provided by the central to local government is considered the main reason why there are variations in local government size[12]. As referred to later, to alleviate any endogenous bias, these variables are lagged by five years. That is, I use these variables in 1996. The Gini coefficients of income in 1994 are from the Statistics

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[10] Jobs are divided into 21 groups ; (1)agriculture, (2)forestry, (3) fisheries, (4) mining, (5) building, (6) manufacture, (7) electricity, gas, water supply, (8) transportation, (9) wholesale, (10) retail sale, (11) restaurant, (12) finance, insurance, (13) real estate business, (14) Mass media, (15) information industry, (16) Medical industry, (17) education, (18) law and account, (19) other service industries, (20) public sector, and (21) others. Job category dummies were constructed based on these groups.

[11] Data for this secondary analysis, "Japanese General Social Surveys (JGSS), Ichiro Tanioka," was provided by the Social Science Japan Data Archive, Information Center for Social Science Research on Japan, Institute of Social Science, University of Tokyo.

[12] About 5 % of GDP is allocated to financial support for local governments. According to Doi & Ihori (2002), people and firms in urban regions, which hold about 60 % of the population of Japan, pay about 75 % of the annual national taxes. However, they receive fewer grants than do those in rural regions.

Bureau of the Ministry of Internal Affairs and Communications[13]. Immigrants and prefecture populations are from the Asahi Shimbun (2004). The immigration rate is measured by (number of immigrants from another prefecture / Population). Using government expenditure and income obtained from the Index Corporation (2006), government size is measured by (Government expenditure/ Income).

3.2. Methods

In line with the discussion above, the estimated function of trust then takes the following form:

$$TRUST_{ipv} = \alpha_0 + \alpha_1 GOVSIZE_p + \alpha_2 IMIGRA_p + \alpha_3 GINI_p + \alpha_4 EDU_{ipv} + \alpha_5 AGE_{ipv} + \alpha_6 MALE_{ipv} + \alpha_7 INCOM_{ipv} + + \alpha_8 MARRY_{ipv} + \alpha_9 CHILD_{ipv} + \alpha_{10} DIV_{ipv} + \alpha_{11} MCITY_{ipv} + \alpha_{12} TOWN_{ipv} + \lambda_v + \omega_{ipv},$$

where TRUST represents the degree of generalized trust ranging from 1 to 3 in individual *i,* prefecture *p*, and individual's job category *v*. α's represents the regression parameters. λ_v represents the unobservable specific effects of *v*'s job categories, which is captured by job category dummies ; ω_{it} represents the error term.

The model is estimated using the Ordered Probit method because the dependent variable is ordered. The estimated coefficients of the Ordered Probit method do not indicate the magnitude of the effect. Hence, following Fischer and Torgler (2005), I also compute the marginal effects for the highest level of generalized trust. In addition, to check the robustness of the estimation results, using a sample where responses to the question about generalized trust were "yes", or "no", I attempt to apply the Probit method.

The effects of each variable on trust are now discussed. The key variable is government size, represented as GOVSIZE. From the discussion above, GOVSIZE is expected to take a negative sign. Heterogeneous society discourages people from trusting others (Alesina & La Ferrara, 2002). For the purpose of capturing socio-economic heterogeneity, IMIGRA and GINI are incorporated as independent variables. Immigrants coming from another prefecture leads to a more culturally heterogeneous society, resulting in the decline of interpersonal trust. This conjecture is in line with the finding that the number of immigrants from other prefectures decreases interpersonal trust, although Japanese society is a racially heterogeneous society

[13] Gini data at the prefecture level are obtained every five years; as 1996 data is not available, I used 1994 data.

(Yamamura, 2008a)[14]. With the aim of capturing this effect, the rate of immigrants, IMIGRA, is incorporated as a dependent variable. The anticipated sign of IMIGRA is negative. With respect to economic inequality considered as economic heterogeneity, GINI (Gini coefficients) has been found to be negatively associated with trust (e.g., Alesina & La Ferrara, 2002; Bjørnskov 2006; Chan2007; Yamamura 2008a). It is necessary to deal with the endogenous problem, which has recently been stressed in some reports (e.g., Leigh 2006a; Bjørnskov 2006; Gustavsson & Jordahl, 2008). With the aim of alleviating potential endogenous problems with Government size, rates of immigrants and the Gini coefficient, these prefecture level variables are lagged five years.

From previous reports (Zak & Knack 2001; Alesina & La Ferrara, 2002), EDU will be positively correlated with trust and take a positive sign. The more educated people are, the more they are inclined to work and trust each other than to spend time verifying each others' actions, this is because the opportunity cost of this for them is high (Zak and Knack, 2001). As a consequence, the sign of EDU is predicted to become positive. Existing reports note that the level of income increases generalized trust (Alesina & La Ferrara 2000). Hence, the anticipated sign of INCOM becomes positive. It is reasonably assumed that a larger population is more diverse, which controls for the heterogeneity that cannot be captured by heterogeneity variables as above (Bjørnskov 2006). Hence, MCITY (medium size city) and TOWN (towns and village) dummies are predicted to take positive signs and the value of TOWN becomes larger than that of MCITY.

Turning to family structure and marital status, people who trust more also tend to marry more easily. Furthermore, married people are more likely to meet and be acquainted with people through their spouse's personal network. Because of their frequent contact with unknown people, married people become more sociable than singles. Accordingly, married people are more inclined to trust others. People with children are likely to have opportunities to interact with other parents through PTA meetings and various events for children held by community associations, leading parents to be integrated into interpersonal networks. These activities lead parents to be more likely to trust others through their interpersonal interactions. As a consequence, the sign for MARRY and CHILD are anticipated to become positive. Experience of divorce, DIV, is considered as a kind of trauma. DIV is included as a dependent variable

[14] Contrarily, there is an optimistic view that the openness of a society leads to the formation of generalized trust (Chan, 2007). Chan (2007) examined the impact of global integration on generalized trust and found the positive openness-trust relationship.

to examine how trauma influences people's trust (Alesina & La Ferrara 2002). Several control variables are also included to capture individual characteristics: age (AGE) and male's dummy (*MALE*).

4. Results

4.1. Ordered Probit Model.

Table 2 reports the results using all samples. After splitting the total sample into workers and non-workers, estimations are conducted to compare workers with non-workers about the effects of government size on trust. Table 3 shows the results using the non-workers sample and Table 4 shows those using the workers sample. Government size is not thought to have the same effect on different types of work. For instance, workers in the public sector seem to benefit from government size because the larger labor demanded by larger government is one of the reasons that these workers have a job. There are also industries that can be protected by the government and so get finance. Workers in the public sector and protected industries are not disturbed by government when they work. It is thus necessary to control for the difference in the relationship with government among industries. To control for the features of work respondents, job category dummies are added as independent variables when estimations using the worker sample are applied. These results are presented in Table 5. Following Fisher and Torgler (2006), because the estimated coefficients do not indicate the magnitude of the effect, I compute marginal effects for the highest level of social capital. These marginal effects are shown in Tables 2, 3, 4 and 5. As previously noted, the question related to generalized trust is: "Generally speaking, would you say that most people can be trusted?". The three possible responses to this question are "no", "depends", and "yes". Respondents who chose "depends" are thought to have a neutral and ambiguous standpoint. I conduct the estimation by excluding them to restrict the sample to distinct positions; these results are shown in Table 6.

Turning to Table 2, GOVSIZE indicates negative signs in all estimations, consistent with anticipation, but does not show statistical significance. This implies that government size does not appear to generally influence the degree of trust. Contrary to the prediction, IMIGRA has a positive sign, despite being statistically insignificant. The signs of GINI are positive in column (1) and negative in columns (2) and (3), while not being statistically significant. These results indicate that variables to capture socio-economic heterogeneity do not influence trust. EDU and INCOM yield positive significant signs in all estimations, as anticipated. The significant positive sign

of CHILD support the previous arguments that having a child leads parents to become involved in interpersonal networks and to trust others. Consistent with the prediction, both TOWN and MCITY show positive signs. Furthermore, in all cases, the marginal effects of TOWN are about two times larger than those of MCITY. As mentioned earlier, the homogeneity of non-urban areas is a reason why TOWN and MCITY take positive signs. In other interpretations, the results of TOWN and MCITY are thought to reflect that residents in non-urban areas are less likely to meet strangers and so are more inclined to maintain stable relationships with colleagues within a closed community. That is, long-term interpersonal relationships lead people to trust "community members". This kind of trust is considered particularized trust, rather than generalize.

With respect to Table 3, the positive sign of GOVSIZE shows that government size does not reduce the degree of non-worker's trust. The reason why GOVESIZE does not take the expected sign might be that bureaucratic red tape stemming from government is less apt to be associated with daily life, such community association activities, and so is less likely to be perceived by non-workers. Non-workers are less inclined to suffer from the negative externality caused by government. IMIGRA and GINI yield the unexpected positive signs in all estimations, but are not statistically significant. EDU takes a positive sign but is not statistically significant. Education is thus not important for forming trustful relationships in non-market activities. I interpret these results of EDU as suggesting that the opportunity cost of verifying each others' actions are not high for non-workers, even if they are highly educated. As a consequence, the level of education does not lead non-workers to trust. This is consistent with the argument of Zak and Knack (2001). Besides the results of GOVSIZE, those of other variables in Tables 4, 5, and 6 are similar to those in Table 2. Hence, I will put focus on results of GOVSIZE hereafter.

In Table 4, it is interesting to observe that all signs of GOVESIZE are negative and statistically significant in columns (2) and (3), implying that Government size discourages workers from trusting others. Table 5 shows that GOVSIZE produces significant negative signs in all estimations. Overall, the absolute values of z-statistics in table 5 are larger than those in table 4. What is more, the absolute marginal effects are smaller than 0.5 in Table 4, whereas they are larger than 0.5 in Table 5. This means that the negative effects of government size in table 5 are more significant and larger than in those in table 4. From this I derive the argument that controlling for benefits, which are given to particular industries by the government, makes it more evident that government discourages workers from trusting others. In Japan, lobbying activity by local interest groups living in rural and agricultural areas results in numerous deficits

(Doi & Ihori 2002; Doi & Ihori 2009, Ch.7). Workers in an over-funded industry can enjoy the benefits given by government and so trustful relationships do not collapse within that industry[15]. On the other hand, workers in an over-funded industry are thought to be envied by workers in other industries, leading to friction and distrust between workers in over-funded industries and the others. What is more, the cost for the supply of public goods is financed through taxation[16]. That is, workers in the public sector are employed by the government and so rely on the contributions of tax payers. A lack of competition leads public sector's workers to provide lower quality service than service provided by the private sector. Nevertheless, even if this is true, public sector's workers do not lose their jobs. This situation leads private sector workers to distrust public sector ones.

The combined results of Tables 2, 3, 4, and 5 indicate that government size does not generally affect the magnitude of generalized trust. Nevertheless, closer examination tells us that government size has a detriment effect on the generalized trust of workers, but has no influence on that of non-workers. It follows from this that government size hampers mutual trust in market transactions, but not in non-market activities. Government is considered to disturb efficient market transactions and so destroy trustful relationships among individuals. Eventually, the larger a government becomes, the higher the transaction costs to the market. Government hampers the formation of social capital, resulting in impediment of economic development. This channel has been hardly been acknowledged, but is considered important from the view point of public choice theory.

4.2. Probit model.

To check the robustness of the results obtained above, I look at the results presented in Table 6. Full sample and non-workers results are presented in columns (1) and (2), respectively. In line with the results in Tables 2 and 3, the results are not statistically significant. With respect of the results using the workers sample, in column (3), the results of GOVSIZE without job category dummies show that coefficients take negative signs and are statistically significant at the 5 % level. The absolute marginal effect is

[15] 'Agricultural-related public capital, fishing ports, flood control, and forest conservation have been over funded as a result of the lobbying activities of local-interest groups' (Doi & Ihori 2009, p.181).

[16] In Japan, items subject to the local taxes, and the tax rates, are specified in the Local Tax Law. This is a national law; local governments have very little authority to set local tax rates or impose local taxes (Doi & Ihori 2009, p. 157).

0.93, which is about two times larger than the corresponding results of the Ordered Probit model shown in column (1) of Table 4. Looking at column (4), which has the results with job category dummies, it is shown that the sign of GOVSIZE is negative, while being statistically significant at the 1 % level. The absolute marginal effect is 1.74, which is about three times larger than the corresponding result using the Ordered Probit model appearing in column (1) of Table 5. The results are consistent with Tables 2, 3, 4, and 5; even when I discard the samples that show an ambiguous attitude against the question concerning trust. That is, alternative estimations show that results are unchanged and so what has been argued thus far can be strongly supported.

5. Conclusion

This paper explores the question of how government influences generalized trust, something that is considered beneficial for various economic activities. Using individual level data, it is found that government size is not associated with generalized trust for non-workers, while government size is negatively associated with generalized trust for workers. This suggests that greater the bureaucratic red tape coming from larger government is confronted and is perceived by workers work experience. On the other hand, non-workers do not perceive the corruption caused by large government so their generalized trust is not affected. Furthermore, for workers, government size has a larger negative effect on generalized trust after controlling for a worker's job categories. This leads me to argue that: Some industries consist of special interest groups that benefit from particular government actions. Hence, the effect of government size varies according to the job category.

Besides the direct influence of government on economic inefficiency through rent-seeking activities (Niskanen 1971), government reduces generalized trust among workers, resulting in the failure of collective action and high transaction costs, causing economic inefficiency. An individual's economic activity basically relies on mutual trust, which appears hindered by interruptions from government. The negative relationship between corruption and economic growth is established (Mauro 1995). This negative relationship can be considered in part the outcome of a decrease of generalized trust, an issue that to date has not been well considered. The main contribution of this paper is to suggest that there is an indirect negative effect of government size on economic activity.

Evidence provided in this research paper has been deduced from Japanese data sources. The effect of government size appears different between developing and developed stage (Yamamura 2009a). Furthermore, the extent of generalized trust

depends on the characteristics of countries such as culture and history. Hence, it is not clear that this paper's argument holds for other countries. Thus, further research will be required to gather individual data from various countries to more closely examine the effects of government size on generalized trust.

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Table 1. Variable definitions and comparison between workers and non-workers

Variables	Definition	Workers	Non-workers
	Prefecture level data		
GOVSIZE	Government expenditure/ Income in 1996	0.13	0.14
IMIGRA	Rates of immigrant from other prefectures in 1996	0.02	0.02
GINI	Gini coefficient of income in 1994.	0.29	0.29
	Individual level data		
GTRUST	Generalized trust. Values range from 1 (No) to 3 (Yes)	2.11	2.05
EDU	Years of schooling	12.1	10.8
AGE	Ages	46.4	60.7
MALE	Male dummy, which takes 1 if individual is male, otherwise 0.	0.54	0.30
INCOM	Household income (10 million Yen)	0.71	0.46
MARRY	Marriage dummy, which takes 1 if individual is married, otherwise 0.	0.74	0.72
CHILD	Number of children	1.59	1.95
DIV	Divorce dummy, which takes 1 if individual experience divorce, otherwise 0.	0.72	0.47
MCITY	Medium size cities dummy, which takes 1 if residential place is in medium size cities, otherwise 0.	0.57	0.56
TOWN	Towns and villages dummy, which takes 1 if residential place is in towns or villages, otherwise 0.	0.24	0.24

Note: Values are simple averages. Data sourced from the Asahi Shimbun (2004) and Index Publishing (2006), and the Statistics Bureau of the Ministry of Internal Affairs and Communications (various years).

Table 2. Determinants of Generalized Trust: Ordered Probit (All samples).

	(1)		(2)		(3)	
	Coeff.	Marginal	Coeff.	Marginal	Coeff.	Marginal
GOVSIZE	-0.14	-0.04	-0.36	-0.11	-0.60	-0.18
	(-0.24)		(-0.64)		(-1.33)	
IMIGRA	3.61	1.13	0.79	0.24	0.37	0.11
	(0.71)		(0.17)		(0.10)	
GINI	0.07	0.02	-0.94	-0.29	-1.19	-0.36
	(0.04)		(-0.51)		(-0.79)	
EDU	0.04**	0.01	0.05**	0.01	0.05**	0.01
	(2.76)		(3.38)		(4.80)	
AGE	-0.002	-0.0008	-0.001	-0.003	-0.001	-0.003
	(-1.07)		(-0.50)		(-0.67)	
MALE	0.12*	0.03	0.09*	0.02	0.06	0.18
	(2.07)		(1.74)		(1.40)	
INCOM	0.33**	0.10	0.32**	0.10		
	(4.55)		(4.84)			
MARRY	-0.01	-0.003				
	(-0.12)					
CHILD	0.06*	0.01				
	(2.01)					
DIV	0.006	0.002				
	(0.05)					
MCITY	0.23*	0.04	0.11	0.03	0.08	0.02
	(1.78)		(1.60)		(1.37)	
TOWN	0.28**	0.09	0.27**	0.09	0.13*	0.04
	(2.85)		(2.97)		(1.82)	
Obs	1611		1809		2741	
Pseudo-R^2	0.02		0.02		0.009	

Note: Marginal effects calculated at the averages of the highest category. Numbers in parentheses are z-statistics calculated using robust standard errors. * and ** indicate significance at 5 and 1 per cent levels, respectively.

Table 3. Determinants of Generalized Trust: Ordered Probit (Non-worker).

	(1)		(2)		(3)	
	Coeff.	Marginal	Coeff.	Marginal	Coeff.	Marginal
GOVSIZE	1.34	0.38	1.06	0.30	0.87	0.24
	(1.40)		(1.15)		(1.20)	
IMIGRA	6.83	1.96	4.70	1.34	1.04	0.29
	(0.87)		(0.61)		(0.17)	
GINI	3.99	1.14	3.94	1.13	0.87	0.24
	(1.31)		(1.41)		(0.39)	
EDU	0.04	0.005	0.02	0.007	0.02	0.005
	(0.90)		(1.17)		(1.19)	
AGE	-0.006	-0.001	-0.005*	-0.001	-0.006**	-0.001
	(-1.63)		(-1.80)		(-2.66)	
MALE	0.17	0.05	0.17*	0.05	0.11	0.03
	(1.47)		(1.67)		(1.40)	
INCOM	0.22*	0.06	0.24*	0.07		
	(1.74)		(2.06)			
MARRY	0.04	0.01				
	(0.34)					
CHILD	0.01	0.004				
	(0.31)					
DIV	0.11	0.03				
	(0.60)					
MCITY	0.11	0.03	0.12	0.03	0.08	0.02
	(0.92)		(1.01)		(0.84)	
TOWN	0.32*	0.09	0.20*	0.09	0.08	0.02
	(1.96)		(1.95)		(0.70)	
Obs	642		689		1066	
Pseudo-R^2	0.01		0.01		0.01	

Note: Marginal effects calculated at the averages of the highest category. Numbers in parentheses are z-statistics calculated using robust standard errors. * and ** indicate significance at 5 and 1 per cent levels, respectively.

Table 4. Determinants of Generalized Trust: Ordered Probit
(Workers without job category dummies).

	(1)		(2)		(3)	
	Coeff.	Marginal	Coeff.	Marginal	Coeff.	Marginal
GOVSIZE	-1.10	-0.36	-1.26*	-0.41	-1.49**	-0.47
	(-1.39)		(-1.70)		(-2.54)	
IMIGRA	1.50	0.49	-1.21	-0.40	0.80	0.25
	(0.22)		(-0.20)		(0.16)	
GINI	-3.93	-1.29	-4.85*	-1.59	-2.75	-0.87
	(-1.50)		(-2.09)		(-1.30)	
EDU	0.07**	0.02	0.08**	0.02	0.09**	0.02
	(3.15)		(3.84)		(5.41)	
AGE	0.004	0.0001	0.002	0.001	0.004*	0.001
	(0.13)		(0.97)		(1.89)	
MALE	0.10	0.02	0.05	0.01	0.03	0.009
	(1.39)		(0.80)		(0.55)	
INCOM	0.35**	0.11	0.32**	0.10		
	(3.70)		(3.82)			
MARRY	-0.13	-0.04				
	(-0.83)					
CHILD	0.09*	0.03				
	(2.16)					
DIV	-0.06	-0.02				
	(-0.36)					
MCITY	0.13	0.04	0.09	0.03	0.07	0.02
	(1.43)		(1.08)		(0.96)	
TOWN	0.25*	0.08	0.25*	0.08	0.15*	0.05
	(2.08)		(2.18)		(1.70)	
Job category dummies	No		No		No	
Obs	969		1120		1675	
Pseudo-R^2	0.02		0.02		0.01	

Note: Marginal effects calculated at the averages of the highest category. Numbers in parentheses are z-statistics calculated using robust standard errors. * and ** indicate significance at 5 and 1 per cent levels, respectively.

Table 5. Determinants of Generalized Trust: Ordered Probit
(Workers with job category dummies).

	(1)		(2)		(3)	
	Coeff.	Marginal	Coeff.	Marginal	Coeff.	Marginal
GOVSIZE	-1.58*	-0.53	-1.57*	-0.51	-1.68**	-0.53
	(-1.96)		(-2.06)		(-2.83)	
IMIGRA	-0.51	-0.17	-2.76	-0.90	-0.64	-0.20
	(-0.08)		(-0.46)		(-0.13)	
GINI	-3.64	-1.22	-3.62	-1.18	-1.82	-0.57
	(-1.33)		(-1.47)		(-0.87)	
EDU	0.06**	0.02	0.07**	0.02	0.07**	0.02
	(2.49)		(3.18)		(3.98)	
AGE	-0.0008	-0.0002	0.001	0.0005	0.003	0.001
	(-0.22)		(0.50)		(1.50)	
MALE	0.13	0.04	0.05	0.01	0.03	0.01
	(1.61)		(0.76)		(0.58)	
INCOM	0.32**	0.10	0.30**	0.09		
	(3.26)		(3.41)			
MARRY	-0.18	-0.06				
	(-1.11)					
CHILD	0.08*	0.02				
	(2.02)					
DIV	-0.10	-0.03				
	(-0.59)					
MCITY	0.16*	0.05	0.13	0.04	0.09	0.02
	(1.71)		(1.45)		(1.20)	
TOWN	0.30**	0.10	0.29**	0.10	0.19*	0.06
	(2.38)		(2.51)		(2.07)	
Job category dummies	Yes		Yes		Yes	
Obs	966		1115		1664	
Pseudo-R^2	0.04		0.04		0.02	

Note: Marginal effects calculated at the averages of the highest category. Numbers in parentheses are z-statistics calculated using robust standard errors. * and ** indicate significance at 5 and 1 per cent levels, respectively.

Table 6. Determinants of Generalized Trust (Excluding 'depends' samples): Probit

	(1) Workers & Non-workers		(2) Non-Workers		(3) Workers		(4) Workers	
	Coeff.	Marginal	Coeff.	Marginal	Coeff.	Marginal	Coeff.	Marginal
GOVSIZE	-0.71	-0.26	2.09	0.82	-2.72*	-0.93	-4.87**	-1.74
	(-0.66)		(1.15)		(-1.98)		(-3.13)	
IMIGRA	7.07	2.61	15.7	6.19	1.26	0.43	-5.37	-1.92
	(0.71)		(1.00)		(0.09)		(-0.40)	
GINI	0.57	0.21	7.75	3.04	-7.05	-2.41	-7.26	-2.59
	(0.16)		(1.30)		(-1.50)		(-1.50)	
EDU	0.06**	0.02	0.03	0.01	0.12**	0.04	0.11**	0.04
	(2.36)		(0.85)		(2.77)		(2.37)	
AGE	-0.005	-0.001	-0.01*	-0.005	0.0008	0.0002	0.002	0.0008
	(-1.21)		(-1.83)		(0.13)		(0.31)	
MALE	0.19*	0.07	0.29	0.11	0.19	0.06	0.22	0.08
	(1.81)		(1.49)		(1.35)		(1.30)	
INCOM	0.77**	0.28	0.45*	0.17	0.95**	0.32	0.89**	0.31
	(5.33)		(1.77)		(4.72)		(4.03)	
MARRY	-0.02	-0.008	0.11	0.04	-0.27	-0.08	-0.33	-0.11
	(-0.12)		(0.47)		(-0.85)		(-1.00)	
CHILD	0.13**	0.04	0.06	0.02	0.18**	0.06	0.17*	0.06
	(2.42)		(0.70)		(2.50)		(2.27)	
DIV	-0.04	-0.01	0.08	0.03	-0.04	-0.01	0.03	0.01
	(-0.22)		(0.18)		(-0.16)		(0.12)	
MCITY	0.13	0.04	0.20	0.08	0.06	0.02	0.16	0.06
	(0.87)		(0.91)		(0.30)		(0.76)	
TOWN	0.37*	0.13	0.49*	0.18	0.27	0.09	0.44	0.14
	(2.03)		(1.79)		(1.05)		(1.63)	
Job category dummies	No		No		No		Yes	
Obs	637		244		393		357	
Pseudo R^2	0.08		0.07		0.12		0.15	

Note: Numbers in parentheses are z-statistics calculated using robust standard errors. * and ** indicate significance at 5 and 1 per cent levels, respectively.

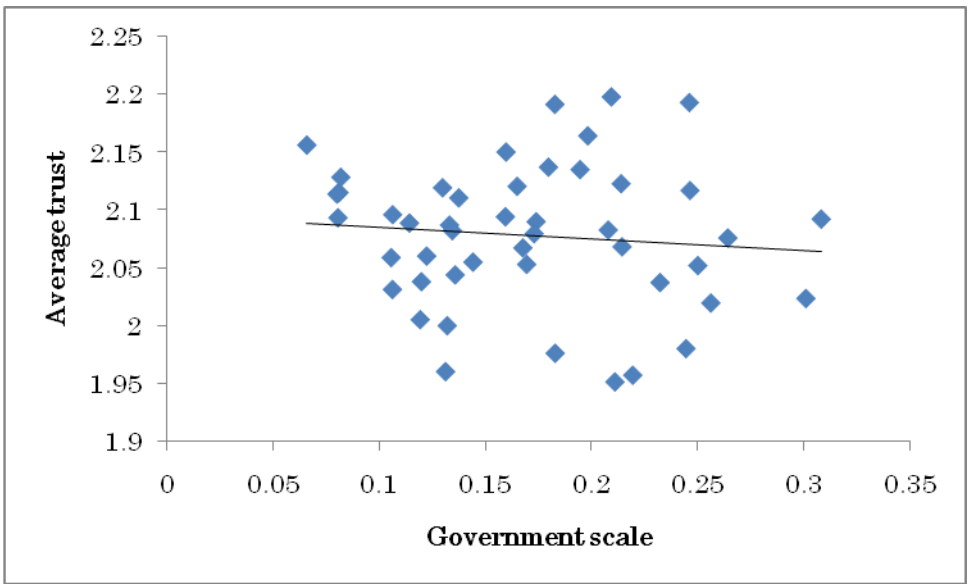

Figure 1 (1). Relationship between government size and average trust. (All sample)

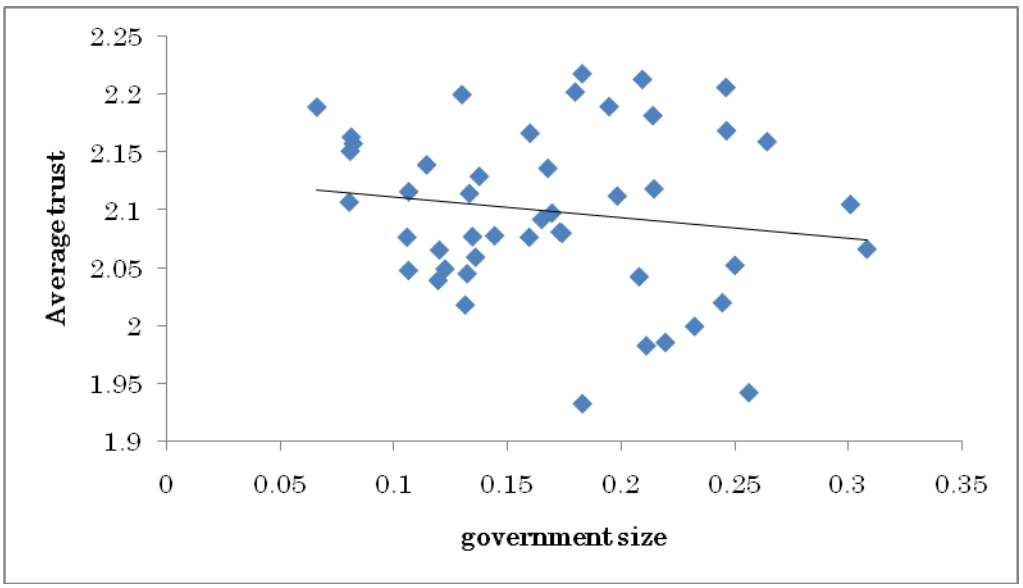

Figure 1 (2). Relationship between government size and average trust. (Workers)

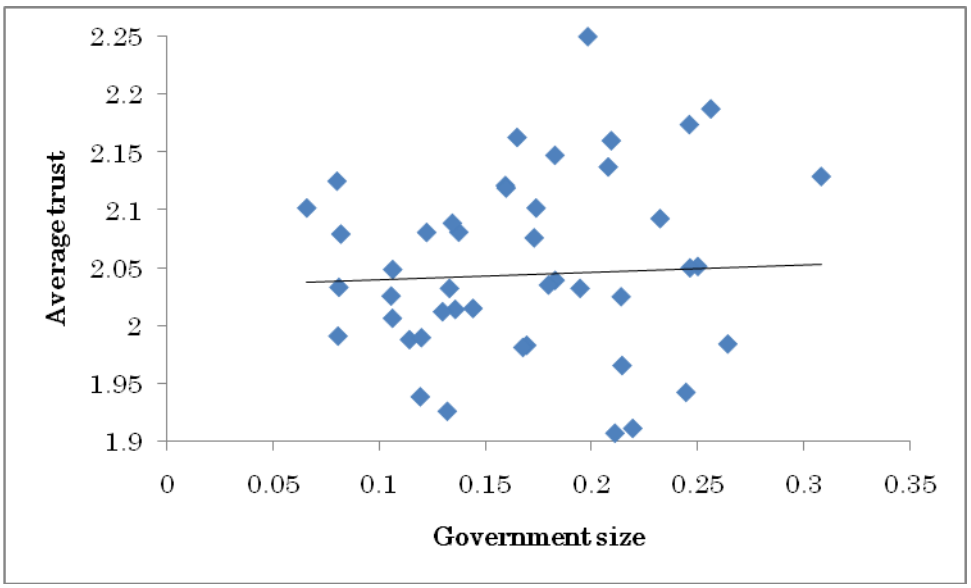

Figure 1 (3). Relationship between government size and average trust. (Non-workers)

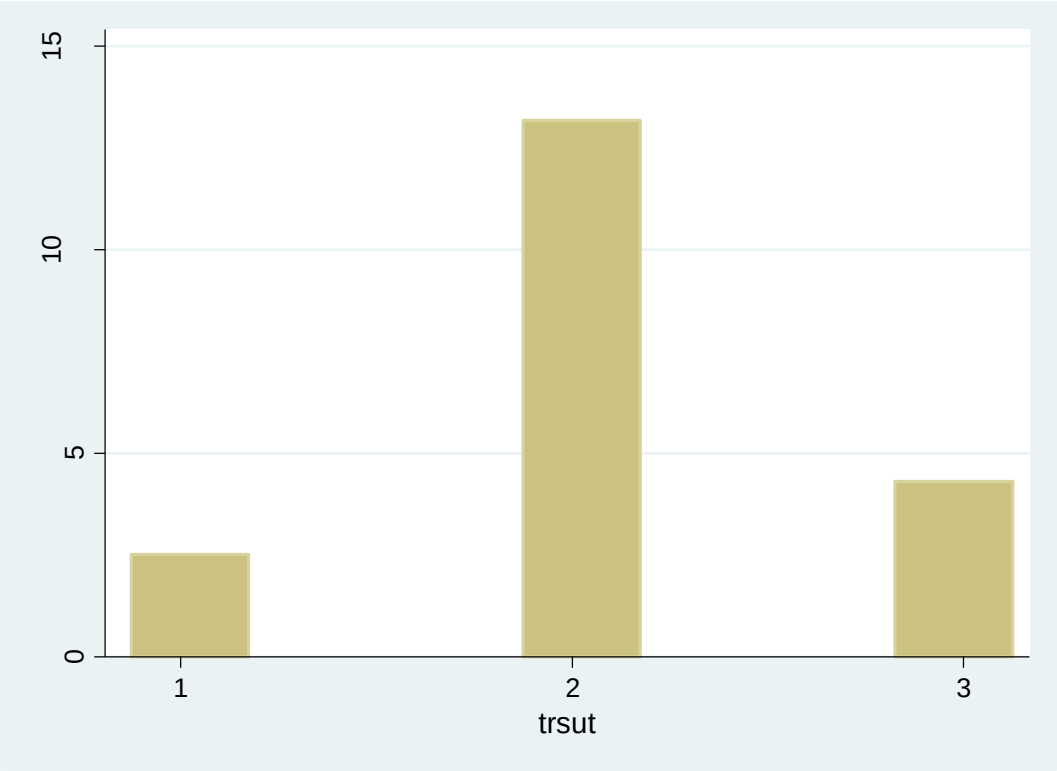

Figure 2. Distribution of trust