Government transparency and expenditure in the rent-seeking industry: the case of Japan for 1998-2004

Yamamura, Eiji and Kondoh, Haruo

15 March 2011

Government transparency and expenditure in the rent-seeking industry: the case of Japan for 1998–2004

Eiji Yamamura and Haruo Kondoh

Abstract. Since the end of the 1990s, local governments in Japan have enacted Information Disclosure Ordinances, which require the disclosure of official government information. This paper uses Japanese prefecture-level data for the period 1998–2004 to examine how this enactment affected the rate of government construction expenditure. The Dynamic Panel model is used to control for unobserved prefecture-specific effects and endogenous bias. The major finding is that disclosure of government information reduces the rate of government construction expenditure. This implies that information disclosure reduces losses from rent-seeking activity, which is consistent with public choice theory.

Keywords: Information disclosure; Special interest group; Construction expenditure; Rent seeking
JEL classification: D73; D78; H79

1. Introduction

It is widely acknowledged that rent-seeking activity decreases economic efficiency (Tullock, 1967; Krueger, 1974). Olson (1982) emphasized that special interest groups have a propensity to lobby for preferential policies, imposing disproportionate costs on the rest of society. This in turn hinders economic growth (Olson, 1982; Heckelman, 2000; Coates et al., 2011). Rent-seeking activities taken by special interest groups lead bureaucrats and politicians to allocate resources to increase the groups' benefits. For instance, construction of local public infrastructure may be lobbied for strongly by contractors, resulting in oversupply because it yields the large profit for contractors. The absence of profit incentives induces government organizations to be less efficient (Buchanan and Wagner, 1977). In Japan, this tendency is more obvious and so "larger amounts are spent on public works than in other countries, controlling for size and population" (Doi and Ihori, 2009, p.181). After World War II, "the business organization … has played a dominant role in economic policy making in Japan" (Olson, 1982, p.76). Firms in the construction industry frequently received orders from local governments as a result of lobbying activity (Asano, 2010). As is widely known, sectors such as the construction industry have strong electoral leverage in Japan; resulting in local governments spending lavishly on public works projects to benefit the industry.

Because of the information asymmetry between government and citizens, politicians, bureaucrats and special interest groups can seek benefits for themselves at the expense of public works needed to increase social welfare. If citizens can obtain sufficient information about the government's activities, they are then able to criticize the government for inefficient resource allocation to particular sectors. That is, the behavior of politicians and bureaucrats can be monitored by citizens. Accordingly, the likelihood that a politician is reelected is reduced if they cannot determine the causes of and possible solutions to citizen dissatisfaction. To use Hirschman's term, this is the *voice* effect (Hirschman, 1970). As a result, the government is forced to be efficient and to maximize social welfare to satisfy citizens. Kopits and Craig (1998) asserted that "transparency in government operation is widely regarded as an important precondition for macroeconomic fiscal sustainability, good governance, and overall fiscal rectitude." The seminal work of Alt and Lassen (2006a) provided evidence from OECD countries that fiscal transparency, which seems to reduce information asymmetry, reduces public debt and deficit. Benito and Bastida (2009) used information from forty one OECD and less developed countries to show a positive relationship between budget transparency

and national government fiscal balance.[1] Recently, local governments in Japan have enacted Information Disclosure Ordinances (IDOs), which require the disclosure of official information to ensure accountability (Jiyukokuminsha, 2009). These ordinances allow citizens to access information about government activities, reducing the information asymmetry between local governments and citizens. IDOs are considered to increase fiscal and budget transparency (Yamashita and Akai, 2005), and are therefore important from the point of view of both democracy and economic efficiency. However, the effectiveness of IDOs in Japan has only been sufficiently explored by Yamashita and Akai (2005).

By using IDOs as a proxy for government transparency, the purpose of this paper is to examine empirically the effect of IDOs on the rate of government construction expenditure. However, there seems to be a reverse causality between the disclosure of information and government size (or the rate of government construction expenditure). This results in an endogeneity bias, which we aim to avoid in this paper by using the Arellano-Bond type Dynamic Panel model. The key finding is that IDOs decrease the rate of government construction expenditure, in line with our hypothesis.

The remainder of this paper is organized as follows. Disclosure of official local government information is 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. Review of disclosure of local government information in Japan

2.1. The Information Disclosure Act

The central government in Japan enacted an information disclosure law in 1999.[2] Information disclosure law is based on the right to know (Muroi, 1999). Prior to this enactment by the central government, local governments in Japan at the level of towns and villages played a leading role in disclosing public information. In 1982, the first information disclosure ordinance was enacted in Japan in the northeastern town of Kanayama (Muroi, 1999). Information disclosure ordinances specify regulations for a particular local government to provide residents the right to request the disclosure of

[1] Previous work using cross-country data suggested that political accountability increases government size (Lassen, 2000). Along the same lines, Alt et al. (2001) argued that fiscal transparency results in a larger government, based on results from the United States.

[2] The Freedom of Information Act in the United States was enacted in 1967.

information possessed by the government. As shown in Figure 1, the rate of enactment of information disclosure ordinances rose drastically from 1998 to 2004. The rate of enactment was about 0.2 in 1998 and reached 0.9 in 2004[3,4]. Disclosure of public information ordinances aim to ensure local government accountability in towns, villages and municipalities, and allow citizens to identify fraudulent interests on the part of politicians, bureaucrats, or private firms. There are various kinds of corrupt uses of public funds, such as cheating and collusion. Before the mid-1990s, information disclosure systems did not function well in the majority of Japan's local governments. Bureaucrats often claimed expenses for business trips which were not actually undertaken. This dishonest behavior was, however, not disclosed to citizens. In the early 1990s, a number of politicians also held the role of company manager for private firms, even though being prohibited by law from engaging in side businesses, and were in a position to receive orders for construction work from local governments (Asano, 2010).

Moreover, the cozy relationships among politicians, bureaucrats and industry, referred as an "iron triangle", are often discussed (Sakakibara, 2003). In particular, public works have been considered the focus of such collusion as summarized by Feldhoff (2002). For example, collusion among bidders for public works, which is known as "dango" exists, and is sometimes arranged by public officials[5]. Public officials often restrict competition between bidders and protect the profits of local construction companies[6]. Construction companies gave retired bureaucrats lucrative positions in return (which is called "amakudari" in Japanese). This is an example of collusion between bureaucrats and construction companies. The relationship between local politicians, including governors, and the construction industry is similar. Politicians sometimes increase the proportion of expenditure allocated to public works in the hope that the construction industry would contribute to or support election campaigns. It was

[3] A rate of 1 indicates that all local governments have enacted such ordinances.

[4] Since 2005, the annexation of municipalities, towns and villages has rapidly increased. As a result, the number of municipalities, towns and villages decreased to around 2,300 in 2005, and to approximately 1,800 in 2009. Accordingly, the rate of municipalities enacting ordinances rose from 0.97 in 2005 to 0.99 in 2009. Annexation of municipalities is thought to be positively related to the rate of enacting ordinances. That is, the rate of enacting disclosure ordinances is partly affected by the annexation of municipalities. From 2005 to 2009, the change in the rate of enacting disclosure ordinances was minute. Therefore, we focus on the period of 1998–2004 in this paper.

[5] McMillan (1991) estimated that excess profits earned by the construction industry from collusion amounts to 16% to 33% of the bid price.

[6] As pointed out by Ohashi (2009), the discretionary procurement procedure, for example exclusive territories, provides a breeding ground for collusion and corruption even if public officials or politicians are not involved explicitly.

pointed out that the political power of the construction industry influenced the amount of local public expenditure on construction work (Kondoh, 2008; Yamashita, 2001). However, existing research has paid little attention to the link between government transparency and political influence on the rent-seeking industry.

Subsidies tend to be provided to sectors with strong electoral leverage, and local governments spend lavishly on public works projects. Information disclosure revealed that public funds were being used illegally and that the total amount of such expenditure amounted to four billion yen in 1998 (Muroi, 1999, p.106). Once an IDO is in place, the process by which, for example, suppliers of public services are appointed becomes transparent, and inappropriate behavior by politician can be exposed. With IDOs, citizens can identify possible collusion between politicians, bureaucrats and rent-seeking firms, which reduces public expenditure on the construction industry. Thus, we regard expenditure on public works by local government as corresponding to the rent-seeking industry.

Municipalities are the lowest level of local government. A cursory examination of Figure 1 reveals that the rate at which municipalities enacted IDOs rose rapidly from 1998 to 2004. In 1998, the rate was about 0.22, but reached 0.92 by 2004. This indicates that this period saw a drastic change as government information became more accessible to citizens. This change is expected to deter politicians and bureaucrats from behaving for self-interest.

2.2. Changes in government construction expenditure

Figure 2 demonstrates changes in government construction expenditure during the period 1998–2004, which we define as the ratio of expenditure on ordinary construction work to total expenditures by municipalities[7]. We see from Figure 2 that government construction expenditure declines constantly. Figure 5 shows the relationship between the rate of IDO enactment and the rate of government construction expenditure. Figure 4 implies that the rate of IDO enactment is negatively correlated with government construction expenditure, but the causality between them is uncertain. Hence, in the following sections, we examine this causality in more detail using regression analysis.

2.3. Testable hypotheses

The supply of public goods is determined not in the realized market but through a

[7] Expenditure on ordinary construction work includes expenses for constructing roads, schools, and public facilities, which is almost equivalent to expenditure for public works by local governments in Japan.

political process, and therefore differs from the optimum level of supply in economic terms. The classical work of Niskanen (1971) asserts that bureaucrats in the government sector have a strong incentive to expand the organization for the sake of their power and positions, which is why bureaucrats endeavor to maximize their budget. The lack of incentives for maximizing social welfare leads government organizations to become less efficient than a 'benevolent dictator' (Buchanan and Wagner, 1977). Consequently, the government has an inclination to supply unnecessary public goods. However, the cost of supplying public goods is financed through taxation of ordinary citizens. Citizens are thus likely to be dissatisfied and to criticize government policy when the cost of public goods exceeds their benefit. Nevertheless, the government has abundant information about the extent to which budget allocation is efficient, while this information is often difficult for citizens to obtain. Because 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).

IDOs reduce the cost of collecting information about government activities, and the enactment of IDOs seems to have reduced the information asymmetry between government and citizens. As a result, fiscal transparency is realized, enabling citizens to see precisely how public spending is used and the extent to which it benefits them. Once citizens can access this information, they are then able to evaluate the benefit of budget allocation and criticize policies as being for the self-interest of politicians and bureaucrats. To borrow the term of Hirschman, this is the *voice* of citizens stemming from their dissatisfaction against government (Hirschman, 1970). The number of ordinary citizen's votes is much greater than the number of votes from special interest groups, and hence citizen dissatisfaction reduces the likelihood that politicians are reelected. That is why the *voice* of citizens has a greater influence on government than rent-seeking activities of special interest groups. As argued by Benito and Bastida (2009), "the more information the budget discloses, the less the politicians can use fiscal deficit to achieve opportunistic goals." Consequently, budget allocations become more efficient, reducing government expenditure in the rent-seeking industry. These considerations lead us to advance the following hypothesis:

Hypothesis: Government information disclosure decreases government construction expenditure.

3. Data and method

3.1. Data

Table 1 presents the definitions of the variables used in this paper, along with the means, standard deviations, and maximum and minimum values for the data used. This paper uses panel data at the prefecture level[8]. The structure of the data consists of forty seven prefectures for the period 1998–2004. The dependent variable in our estimation, CONTRAT, is calculated as the ratio of expenditure on ordinary construction work to total expenditure. The data for both of these is aggregated to the prefectural level from the Survey on Municipal Accounts issued by the Ministry of Internal Affairs. GDP per capita comes from Asahi Shimbun (2008). Population and the rate of IDO enactment are derived from Index Publishing (2006). The population working in the construction sector is collected from Asahi Shimbun (2008). The data for 1996, 1998, 1999, 2001 and 2003 were generated by interpolation based on the assumption of constantly changing rates because data is only available for 1995, 1997, 2000, 2002, and 2005. We use the population working in the construction sector and the total population to calculate the proportion of the population working in the construction sector. The unemployment rate comes from the website of the Statistics Bureau of the Ministry of Internal Affairs and Communications[9]. The Population Census (1990, 2000), as published by the Ministry of Internal Affairs and Communications, provided data for the number of people graduating from university. The data between 1998 and 2000 were generated by interpolation based on the assumption of constantly changing rates between 1990 and 2000, and the data between 2001 and 2004 were calculated by adding the annual number who graduated from university between 2001 and 2004, collected from the Basic Report for Schools (2001-2004) published by the Ministry of Education, Culture, Sports, Science and Technology. The proportion of leftwing seats in local assembly comes from the dataset on prefectural assembly, which is open to the public on Yosuke Sunahara's website[10].

We see from Table 2 that the correlation coefficient between CONTRAT and DINF is -0.70, which is consistent with Figure 3.

3.2. Methods

To examine the hypotheses raised previously, this paper uses the Arellano-Bond type

---

[8] A Japanese prefecture is roughly equivalent to a state in the United States or a province in Canada.

[9] Available from http://www.stat.go.jp/data/roudou/pref/index.htm (accessed November 1, 2010, Japanese only).

[10] Available from http://www.geocities.jp/yosuke_sunahara/data/data.html (accessed November 18, 2010, Japanese only).

Dynamic Panel model (Arellano, 2003). The estimated function takes the following form:

$$CONTRAT_{it}=\alpha_1 CONTRAT_{i(t-1)} + \alpha_2 DINF_{it} + \alpha_3 CONPOP_{it} + \alpha_4 UNEMP_{it} + \alpha_5 Ln(GDP)_{it} + \alpha_6 EDU_{it} + \alpha_7 LEFT_{it} + \alpha_8 FMAL_{it} + k_t + u_i + \varepsilon_{it},$$

where the dependent variable is $CONTRAT_{it}$ in prefecture i and year t, and the αs represent regression parameters. The lag in the dependent variable is included as an independent variable. The unobservable fixed effects in prefecture i are represented by u_i. The variable k_t represents the specific effects for year t, which is captured by dummy variables that control for macro-level shocks in Japan. Further, ε_{it} is the error term. The structure of the data covers 6 years for 47 prefectures. However, the Dynamic Panel model takes the first difference, and CONTRAT lagged two periods or more are used as instruments, so 47 observations for two years are discarded. To eliminate u_i from the model, we take the first difference form (Arellano, 2003).

The parameter α_2 can be interpreted as the effect of DINF change on CONTRAT. From the hypothesis proposed earlier, we anticipate that α_2 should be negative. Control variables are as follows: CONPOP, which represents the proportion of workers in the construction sector, is included to capture the rent-seeking activity taken by special interest groups in the construction industry. The larger CONTRAT is, the more active the rent-seeking activity is. Hence, we expect the sign of α_3 to be positive. UNEMP and Ln(GDP), which represent unemployment rates and per capita GDP respectively, are incorporated to control for economic conditions. Governments seem to increase investment for public construction so as to decrease unemployment rate. The predicted sign of α_4 is positive. Further, the purpose of EDU is to capture human capital effects. LEFT is included to control for effect of ideology in each prefecture. FMAL is added as an independent variable to capture demographic effects.

Large public expenditure for a particular sector allows citizens to determine whether public expenditure is used efficiently. This leads citizens to call for information disclosure by the government. A large construction expenditure increases the demand for construction workers, and so unemployment rates seem to decrease and GDP to increase. Thus we consider DINF, CONPOP, UNEMP and Ln(GDP) to be endogenous variables. Hence, the terms DINF, CONPOP, UNEMP and Ln(GDP) are treated as endogenous variables in the Dynamic Panel model for the purpose of controlling for estimation bias[11]. We use endogenous variables with a lag of two periods or more as

[11] As in previous studies (Baliamoune-Lutz, 2009; Swaleheen, 2011), the Dynamic Panel model is used to control for endogenous bias by treating several independent

additional instrumental variables (Arellano, 2003, p.168).

4. Results

Besides the Dynamic Panel model, we conduct alternative estimations using the Fixed Effects model. Table 3 presents the Fixed Effects estimation results, which we consider before proceeding to the Dynamic Panel estimation results. As we predicted, the sign of the coefficient for DINF is negative and statistically significant in all columns. Further, its absolute value is 0.01, meaning that a 1% increase in IDO enactment leads to a decrease in government construction expenditure by 0.01%. CONPOP and UNEMP are not statistically significant, which is not consistent with what we anticipated. The sign of EDU is negative and statistically significant, suggesting that more educated citizens prefer lower expenditure in the construction industry. LEFT has a significantly positive sign, which we interpret as implying that left wing politicians would like to protect 'blue-collar' workers by supporting policies favoring the construction industry. Another plausible interpretation is that expenditure in the construction industry is viewed as a means for income redistribution, and is therefore encouraged by left wing politician.

Table 4 presents the results of the Dynamic Panel estimation where, as explained in the previous section, DINF, CONPOP, UNEMP and Ln(GDP) are treated as endogenous variables. Before discussing the results in Table 4, we check the validity of the Dynamic Panel estimation. The two important tests are Sargan's over-identification test and the second-order serial correlation test (Arellano, 2003). We use Sargan's test to check the validity of the instrumental variables. The null hypothesis is that the instrumental variables are uncorrelated to the residual. If the hypothesis is not rejected, the instruments are considered valid. Furthermore, confirming the null hypothesis that there is no second-order serial correlation for the disturbance of the first-difference equation is important, because the consistency of the estimator relies upon the absence of second-order serial correlation. Table 4 tells us that both hypotheses are not rejected for all estimations, suggesting that the estimation results are valid.

The coefficient of DINF is negative as anticipated, and is statistically significant at the 1% level in all columns. The absolute values of DINF are between 0.02 and 0.03, which is approximately 0.01-0.02 larger than those in Table 3. This implies that a 1% increase in IDO enactment decreases government construction expenditure by 0.02-0.03%. Controlling for endogenous variable bias increases the effect of DINF.

---

variables as endogenous.

Contrary to the results in Table 3, the coefficients of CONPOP and UNEMP are positive and are statistically significant in all estimations. It is surprising that the values of CONPOP range from 2.23 to 3.59, implying that a 1% increase in the proportion of construction workers results in a 2.23-3.59% increase in government construction expenditure. Rent-seeking behavior in the construction industry is thus considered to contribute to an increase in government expenditure in the construction industry. The absolute values of UNEMP range from 0.87-1.03, suggesting that a 1% increase in the unemployment rate leads to a 0.87-1.03% increase in government expenditure for public works. EDU is significantly negative in column (1), whereas it is positive, although insignificant, in columns (2) and (3). Hence, the effect of EDU is not stable, showing that the results for EDU in Table 3 are not robust. LEFT has a positive sign and is statistically significant at the 1% level in all columns, which is consistent with the results in Table 3.

To check robustness, we conduct alternative estimations as presented in Tables 5 (a)-(c). In Table 5 (a), only DINF is treated as an endogenous variable, while in Table 5 (b), DINF and CONPOP are treated as endogenous variables, and in Table 5 (c), DINF, CONPOP, and UNEMP are treated as endogenous variables. To save space, only the results for DINF are shown in each table although the independent variables are the same as in Tables 3 and 4. As in Tables 3 and 4, DINF is negative and is statistically significant at the 1% level in most columns. In seven of the nine cases, the absolute values of coefficients range from 0.02-0.03, which is similar to the results shown in Table 4.

Considering Tables 3-5 jointly strongly supports the hypothesis that information disclosure by the government decreases government construction expenditure.

5. Conclusion

Asymmetric information is a cause of both market and government failures, resulting in decreased social welfare. From an economic viewpoint, politicians and bureaucrats are seen as agents, whereas citizens are considered to be principals. Information asymmetry between agent and principal enables the agent to use opportunistic behavior and act inappropriately, causing a principal-agent problem in the political process. Rent-seeking activity in a particular industry leads politicians and bureaucrats to act in a way that benefits the industry at the expense of the greater society. Such activity cannot be criticized by citizens because the cost of accessing information is large. As a consequence, information asymmetry increases the likelihood that moral hazards occur. However, if government information is open to citizens, inappropriate activity by the

government can then be criticized, decreasing the likelihood that a politician is reelected. Therefore it is important for policy makers to reduce information asymmetry. IDOs are thus expected to play a critical role in improving government efficiency and were therefore increasingly enacted in Japan throughout the 1990s.

This paper has attempted to ascertain the association between IDO enactment and government construction expenditure. Since the end of the 1990s, local governments in Japan have enacted IDOs. This paper used Japanese prefecture-level data for the period 1998–2004 to examine how the enactment of IDOs affects government construction expenditure. A Dynamic Panel model was used to control for unobserved prefecture-specific effects and endogenous bias of IDOs. The major findings are as follows. Rent-seeking behavior in the construction industry has a large positive effect on government expenditure on construction. Further, IDOs decrease the rate of government construction expenditure. This implies that IDOs improve the efficiency of government resource allocation, although the effect of rent-seeking behavior is still observed. We postulate that IDOs reduce the return from the rent-seeking activity thereby reducing the incentives for special interest groups to seek rent; as a consequence, rent-seeking activity seems to decline in the long run, increasing overall societal welfare.

IDOs appear to have a critical role not only in the distribution of government expenditure but also in total government expenditure and deficit (Lassen, 2000; Alt et al., 2001; Alt and Lassen, 2006a). As few studies have investigated the factors determining government transparency (Alt and Lassen, 2006b), these issues should be investigated in future research.

References

Alt, J.E., & Lassen, D.D. (2006a). Fiscal transparency, political parties, and debt in OECD countries. *European Economic Review, 50,* 1403-1439.

Alt, J.E., & Lassen, D.D. (2006b).The causes of fiscal transparency: Evidence from the American States. *EPRU Working Paper Series 2006-02*, Economic Policy Research Unit (EPRU).

Alt, J.E., Lassen, D.D, & Skilling, D. (2001). Fiscal transparency, guvernatorial popularity, and the scale of government: Evidence from the state. *EPRU Working Paper Series 01-16*, Economic Policy Research Unit (EPRU)..

Arellano, M. (2003). *Panel data econometrics.* New York: Oxford University Press.

Asahi Shimbun. (2008). *Minryoku: Todofuken-betsu minryoku sokutei shiryoshu (CD-ROM edition)*, Asahi-Newspaper, Tokyo.

Asano, E. (2010). *Local government reform promoted by information disclosure (Johokokai de susumeru jichitai kaikaku: Shuzai noto ga akasu katsuyo-jutsu.).* Tokyo: Jichitaikenkyu-sha.

Benito, B., and Bastida, F. (2009). Budget transparency, fiscal performance, and political turnout: An international approach. *Public Administration Review*, *63(3)*, 403-417.

Coates, D., Heckelman, J.C., & Wilson, B. (2011). Special-interest groups and growth. Forthcoming in *Public Choice*.

Downs, A. (1957). *An economic theory of democracy*. New York: Harper and Row.

Doi, T., & Ihori, T. (2002). Fiscal reconstruction and local interest groups in Japan. *Journal of Japanese and International Economies, 16*, 492-511.

Doi, T., & Ihori, T. (2009). *The public sector in Japan: Past development and future prospects.* Cheltenham: Edward Elgar.

Dworkin, R. (1977). *Taking rights seriously*. London, Duckworth.

Feldhoff, T. (2002). Japan's construction lobby Activities: Systemic stability and sustainable regional development. *ASIEN, 84*, 34-42.

Hayami, Y. (2001). *Development economics: From poverty to the wealth of nations. (second edition)*. New York: Oxford University Press.

Heckelman, J. (2000). Consistent estimates of the impact of special interest groups on economic growth. *Public Choice, 104,* 319-327.

Hirschman, A.O. (1970). *Exit, Voice, and Loyalty: Response to Decline in Firms, Organizations and Sates*. Cambridge: Harvard University Press.

Index Publishing (2006). *Chiiki tokei* (CD-ROM edition). Tokyo: Index Publishing.

Kondoh, H. (2008). Political economy of public capital formation in Japan, *Public Policy Review, 4(1)*, 77-110.

Koptis, G., and Craig, J. (1998). Transparency in government operation. *IMF occasional paper 158*.

Krueger, A. (1974). The political economy of the rent-seeking society. *American Economic Review, 64*: 291-303.

Lassen, D.D, (2000).Political accountability and the size of government: Theory and cross-country evidence. *EPRU Working Paper Series 00-20*, Economic Policy Research Unit (EPRU).

Matsui, S. (2000). *An introduction to the information disclosure law (Johokokai ho nyumon).* Tokyo: Iwanami-shoten.

McMillan, J. (1991). Dango: Japan's price-fixing conspiracies, *Economics and Politics, 3,* 201-218.

Ministry of Internal Affairs and Communications Statistics Bureau (various years). *Establishment and enterprise census.* Tokyo: Ministry of Internal Affairs and Communications Statistics Bureau.

Ministry of Internal Affairs and Communications Statistics Bureau (various years). *Survey on Municipal Accounts* Tokyo: Ministry of Internal Affairs and Communications Statistics Bureau.

Muroi, C. (1999). *Exhortation towards disclosure of local governments' information. (Jichitai johokokai no susume).* Tokyo: Junpo-sha.

Niskanen, W. (1971). *Bureaucracy and representative government.* Chicago: Aldine-Atherton.

Ohashi, H. (2009). Effects of transparency in procurement practices on bidding behavior: The experience of municipal public works, *Review of Industrial Organization, 34(3)*, 267-285.

Olson, M. (1965). *The logic of collective action*. Cambridge, MA: Harvard University Press.

Olson, M. (1982). *The rise and decline of nations*. New Haven: Yale University Press.

Sakakibara, E. (2003) *Structural reform in Japan: Breaking the iron triangle*. Washington, D.C., Brookings Institution Press.

Swaleheen, M. (2011). Economic growth with endogenous corruption: an empirical study. *Public Choice, 146*, 23-41.

Tullock, G. (1967). The welfare costs of tariffs, monopolies, and theft. *Western Economic Journal, 5*, 224-232.

Turuoka, K., & Asaoka, M. (1997). *Information disclosure in Japan: Resistant bureaucrats. (Nihon-no johokokai: Teikosuru kanryo).* Tokyo: Kaden-sha.

Uga, K. (2001). *Information disclosure law and information disclosure ordinances. (Johokokai ho, johokokai jorei.).* Tokyo: Yuhikaku.

Yamashita, K. (2001). Political decision making of public investment: Hypothesis testing based on panel data" *Public Choice Studies, 36*, 21-30. (in Japanese)

Yamashita, K & Akai, N. (2005). Transparency, accountability and cost efficiency of government : Evidence from local public services in Japan (Zaisei Unei no Tomeisei to Jigyo Koritsu-sei). *Nagasaki University Kenkyu Nenpo*, *21*, 61-73.

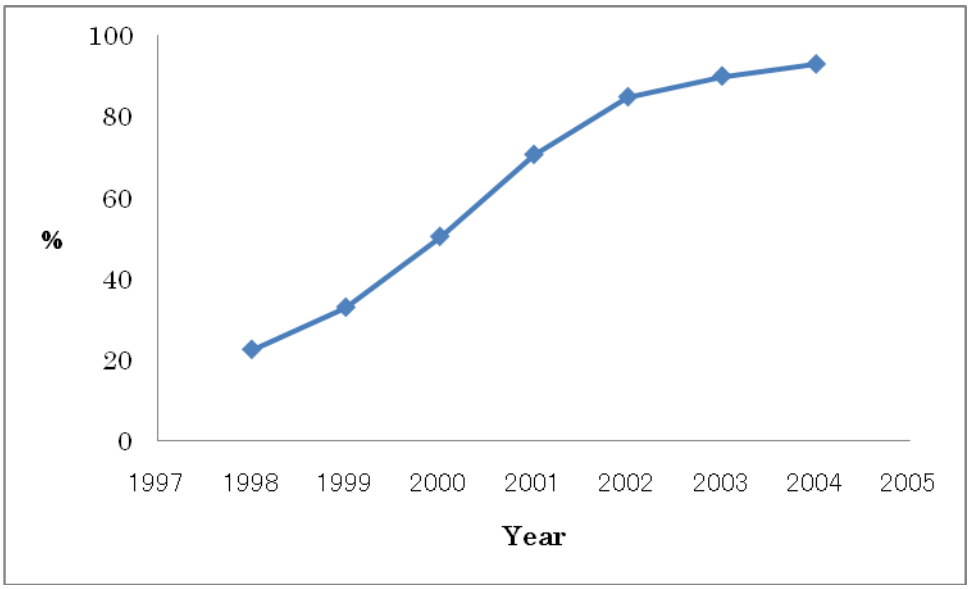

Fig.1. Rate of municipalities enacting Information Disclosure Ordinances (%).

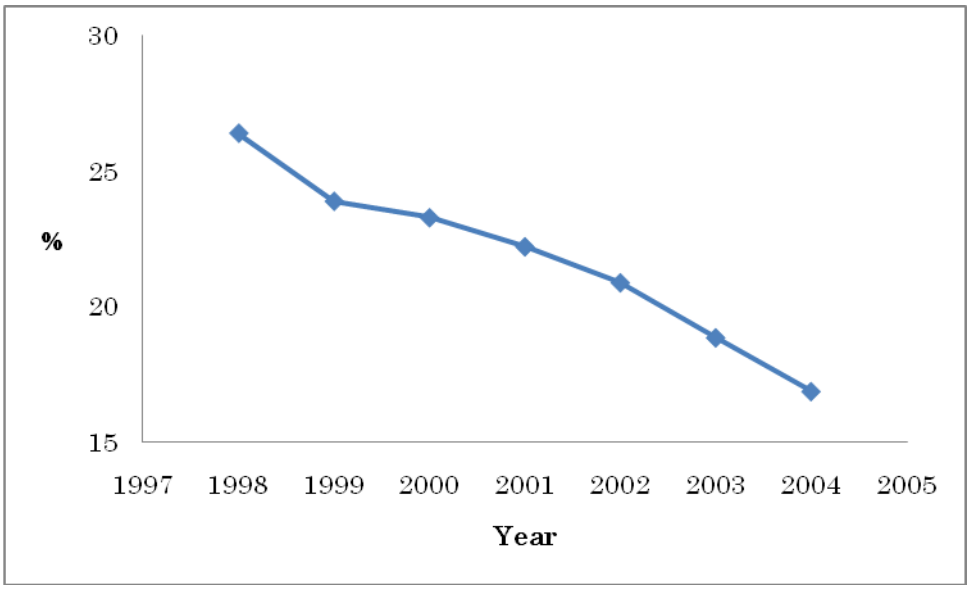

Fig.2. Rate of government construction expenditure (Expenditure on ordinary construction work/Total expenditure)

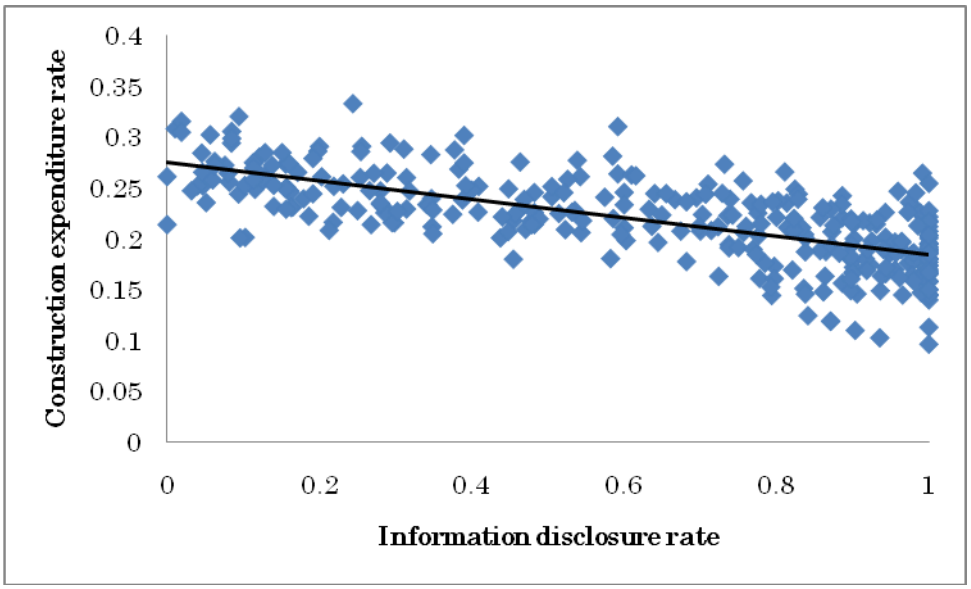

Fig.3. Correlation between the rate of enactment of Information Disclosure Ordinances and the rate of government construction expenditure.

Table 1. Variable definitions and basic statistics.

Variables	Definition	Mean	Standard deviation	Max	Min
CONRAT	Rate of government construction expenditure (expenditure on construction work/total expenditure)	0.21	0.04	0.33	0.09
DINF	Rate of enactment of Information Disclosure Ordinances (IDOs) by municipalities (# of municipalities enacting IDOs/total # of municipalities)	0.63	0.32	1	0
CONPOP	Proportion of population working in the construction sector	$0.15*10^{-3}$	$0.55*10^{-3}$	$5.1*10^{-3}$	$0.005*10^{-3}$
UENMP	Unemployment rate	0.04	0.01	0.08	0.02
GDP	Per capita GDP (Millions yen)	3.57	0.70	7.41	2.52
EDU	Rate of university graduation	0.09	0.03	0.24	0.05
LEFT	Leftwing seats in local assembly	0.09	0.05	0.26	0
FMAL	Female population rate	0.51	0.01	0.54	0.48

Note. Values are simple averages. Data sources are Asahi Shimbun (2008), Index Publishing (2006) and the Statistics Bureau of the Ministry of Internal Affairs and Communications (various years).

Table 2. Correlation matrix of variables used for estimation

	CONRAT	DINF	CONPOP	UNEMP	GDP	EDU	LEFT	FMAL
CONRAT	1.00							
DINF	-0.70	1.00						
CONPOP	-0.01	0.05	1.00					
UNEMP	-0.27	0.22	-0.001	1.00				
GDP	-0.36	0.20	-0.06	-0.15	1.00			
EDU	-0.48	0.28	-0.16	0.22	0.53	1.00		
LEFT	0.12	-0.11	0.003	0.17	0.03	0.09	1.00	
FMAL	0.25	-0.19	0.10	-0.07	-0.39	-0.45	0.19	1.00

Table 3. Dependent variable is $CONRAT_{t,}$: (Fixed Effects Model)

	(1)	(2)	(3)
$CONRAT_{t-1}$	0.69***	0.65***	0.63***
	(11.8)	(11.0)	(10.4)
$DINF_t$	-0.01**	-0.01***	-0.01**
	(-1.98)	(-2.72)	(-2.55)
CONPOP	-0.94	-0.30	-0.38
	(-0.62)	(-0.20)	(-0.25)
UNEMP	0.13	0.12	0.11
	(0.51)	(0.50)	(0.43)
$Ln(GDP)_t$	0.11***	0.10***	0.10***
	(2.85)	(2.76)	(2.69)
EDU_t	-0.71***	-0.43*	-0.50*
	(-2.93)	(-1.71)	(-1.94)
$LEFT_t$		0.16***	0.17***
		(2.97)	(3.03)
$FMAL_t$			0.33
			(1.31)
R-square (between)	0.56	0.52	0.51
Observations	281	281	281

Notes: Numbers in parentheses are t-statistics. *, **, and *** indicate significance at the 10%, 5% and 1%levels, respectively.

Table 4. Dependent variable is $CONRAT_{t,}$: (Dynamic Panel Model)

	(1)	(2)	(3)
$CONRAT_{t-1}$	0.79***	0.70***	0.66***
	(21.3)	(20.7)	(16.4)
$DINF_t$	-0.02***	-0.03***	-0.03***
	(-4.28)	(-7.79)	(-8.66)
CONPOP	2.23**	3.59***	3.36***
	(2.42)	(4.28)	(3.68)
UNEMP	0.87***	1.08***	1.03***
	(3.15)	(4.82)	(4.59)
$Ln(GDP)_t$	0.24***	0.26***	0.23***
	(13.2)	(11.1)	(9.20)
EDU_t	-0.17**	0.20	0.01
	(-2.32)	(1.38)	(0.12)
$LEFT_t$		0.20***	0.19***
		(7.53)	(6.61)
$FMAL_t$			0.35***
			(3.38)
Endogenous variables	DINF CONPOP UNEMP Ln(GDP)	DINF CONPOP UNEMP Ln(GDP)	DINF CONPOP UNEMP Ln(GDP)
Sargan-test <P-value>	43.2 <0.99>	43.6 <0.99>	43.4 <0.99>
Serial correlation Second order <P-value>	0.42 <0.66>	-0.45 <0.64>	-0.33 <0.74>
Wald chi-square	83817	99325	8879
Observations	233	233	233

Notes: Numbers in parentheses are z-statistics. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Table 5. Dependent variable is $CONRAT_t$: (Dynamic Panel Model)

(a)

	(1)	(2)	(3)
$DINF_t$	-0.01** (-2.50)	-0.02*** (-4.77)	-0.02*** (-4.28)
Independent variables	The same as those in column (1) of Table 4	The same as those in column (2) of Table 4	The same as those in column (3) of Table 4
Endogenous variables	DINF	DINF	DINF
Sargan-test <P-value>	39.7 <0.06>	39.2 <0.07>	39.6 <0.07>
Serial correlation Second order <P-value>	0.70 <0.48>	0.48 <0.96>	0.22 <0.82>
Wald chi-square	2952	2952	2708
Observations	233	233	233

(b)

	(1)	(2)	(3)
$DINF_t$	-0.01*** (-3.57)	-0.02*** (-6.67)	-0.02*** (-5.88)
Independent variables	The same as those in column (1) of Table 4	The same as those in column (2) of Table 4	The same as those in column (3) of Table 4
Endogenous variables	DINF CONPOP	DINF CONPOP	DINF CONPOP
Sargan-test <P-value>	43.6 <0.40>	44.2 <0.37>	43.8 <0.39>
Serial correlation Second order <P-value>	0.69 <0.48>	0.08 <0.93>	0.08 <0.92>
Wald chi-square	8229	7337	52807
Observations	233	233	233

(c)

	(1)	(2)	(3)
$DINF_t$	-0.02*** (-6.05)	-0.03*** (-8.82)	-0.03*** (-9.39)
Independent variables	The same as those in column (1) of Table 4	The same as those in column (2) of Table 4	The same as those in column (3) of Table 4
Endogenous variables	DINF CONPOP UNEMP	DINF CONPOP UNEMP	DINF CONPOP UNEMP
Sargan-test <P-value>	43.9 <0.87>	42.9 <0.90>	41.0 <0.93>
Serial correlation Second order <P-value>	0.50 <0.61	-0.11 <0.91>	-0.08 <0.92>
Wald chi-square	61559	18277	2708
Observations	233	233	233

Notes: Numbers in parentheses are z-statistics. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.