

Fiscal Adjustments by Outsiders

Shun-ichiro Bessho* Kimiko Terai†

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Abstract

This paper investigates the role of fiscal advisors in maintaining fiscal discipline of the governments when the appointment of fiscal advisors is determined endogenously. We formulate a mechanism to determine how external advisors serve as a commitment device for politicians who attempt re-election. We also test our hypothesis empirically using the Japanese panel data of prefectural governments. An incumbent local politician makes a decision on the appointment of an external agent as his advisor before he knows the type of his competence in the policy field in which he has to work. If the incumbent politician can commit to the fiscal discipline set by the external advisor, and if his competency level is *ex post* low, he can avoid wasteful expenditure subject to the fiscal constraint, and be re-elected. If the incumbent politician has a high competency level, the scale of his public good provision is suppressed by the fiscal constraint below the level that he could choose without the constraint, though he can then also be re-elected. Our empirical analysis supports this hypothesis in the sense that the local governments with directors from the central government accumulate less local debt and spend less. Our results also show that they reduce investment in infrastructure so as to scale down both the total expenditure and local debt without decreasing personnel expenses or subsidies and grants.

Keywords: delegation of policy-making; fiscal restraints; personnel interchange; re-election.

*School of International and Public Policy and Department of Economics, Hitotsubashi University, 2-1 Naka, Kunitachi, Tokyo, 186-8601 Japan. E-mail: bessho@econ.hit-u.ac.jp

†(Corresponding author) Faculty of Business Administration, Hosei University, 2-17-1 Fujimi, Chiyodaku, Tokyo, 102-8160 Japan. Tel: +81-3-3264-4602; Fax: +81-3-3264-9698; E-mail: terai@hosei.ac.jp

1 Introduction

In public choice tradition, policy makers, as rationally self-interested actors, have a tendency to spend more to “buy” votes. A number of instruments and approaches are proposed to improve the incentives of politicians and to eliminate deficit bias (e.g., Debrun et al. 2009). Commitment or third-party enforcement can play a role as well. This paper investigates the effect of fiscal advisors in maintaining fiscal discipline of the governments when the appointment is determined endogenously. First, we formulate a mechanism by which outside advisors act as a commitment device for politicians seeking re-election when there are no legally binding fiscal rules, such as a balanced-budget rule. Second, we empirically test our hypothesis using the Japanese panel data sets of prefectural (local) governments. In our empirical analysis, central bureaucrats on loan to the local governments are considered as outside advisors.

A considerable number of studies have examined the political economy of budget deficits a la Buchanan (e.g., Alesina et al. 1998, Woo 2003) and have identified many potential sources of deficit bias, such as myopic voting (Nordhaus 1975), signaling an incumbent’s competence (Rogoff 1990) and the common pool problem (von Hagen and Harden 1995, Doi and Ihori 2002). Possible instruments for fiscal discipline include financial market sanctions (Bayoumi et al. 1995) and fiscal restrictions (Eichengreen and Bayoumi 1994). Neither is, however, necessarily effective, because market sanctions are often weak and quite nonlinear, and fiscal restrictions can be ignored or avoided (von Hagen 1991, Milesi-Ferretti 2003). In fact, the Fiscal Structural Reform Law of Japan, established in 1997, has been frozen since 1998 because of poor macroeconomic situation.

Delegation of some aspects of policies to an independent agency as a commitment device, which has been discussed intensively in the context of monetary policy (Barro and Gordon 1983, Rogoff 1985, Waller 1989, Fratianni et al. 1997, Lippi 1998), can also be a solution for fiscal adjustment (Debrun 2009). We take incumbent politicians’ motivation for re-election as a reason for their appointment of outside advisors.¹ If incumbent

¹Refer to Barro (1973), Ferejohn (1986), Besley (2006), Besley and Smart (2007), Alesina and Tabellini (2007), and Alesina and Tabellini (2008) as previous models examining the effects of re-election pressure. Alesina and Tabellini (2008) also examine the problem of politicians’ delegating tasks to independent

politicians are concerned about upcoming electoral outcomes, and if the constituency casts votes retrospectively, the politicians may discipline themselves by such an *ex ante* appointment.

Our theoretical model is closely related to Besley and Smart (2007) in its description of how fiscal constraints on a politician's power to collect funds improve voters' welfare. Our model also introduces a fiscal advisor to whom setting a fiscal constraint can be delegated². The problem of delegating an authority to set fiscal constraints to an outside agent by a politician himself is not treated in Besley and Smart (2007). We select the Japanese central bureaucrats on loan to the local governments as an example of outside agents and demonstrate that there exist environments in which a local incumbent politician readily invites a central bureaucrat who is expected to impose a welfare-improving constraint upon him. Japan has a system of personnel interchange across different levels of the government (Muramatsu et al. 2001). Some senior positions in the local governments are filled by central bureaucrats on loan. Although fiscal decentralization has been in vogue in Japan since the late 1980s, more than a few local governments welcome central bureaucrats as vice-governors or directors of their departments who are expected to serve on a temporary basis. One of the contributions of this work is thus to theoretically present a possible example of independent budget monitors that are voluntarily employed by politicians. Another contribution of this paper is to empirically examine how these central bureaucrats on loan affect the local fiscal situation.

In our model, an incumbent politician forming a local government makes a decision on the appointment of an outside agent (a central bureaucrat) as his advisor before he knows his own type of competence in the policy field that he has to work in. He gets information on his type after appointment and before decision on spending, while the outside agent has no information about it on his decision-making. Two sources of inefficiency are incorporated in this model; asymmetric information on the incumbent politician's type and asymmetric information on the allocation of public funds between welfare-improving expenditure and wasteful expenditure for the incumbent himself. If an

bureaucrats. However, they present solely a general insight, and not detailed conditions for delegation.

²Konishi (2006) also discusses the effect of fiscal constraint in his analysis of fiscal adjustment by spending cuts versus tax increases.

incompetent politician anticipates his own defeat in the upcoming election, he will collect a great amount of taxes and spend some of them for his own interests. If he chooses to behave as if he were competent in order to win the election, by *ex ante* appointing a fiscal advisor, his wasteful expenditure may be contained to a certain extent. However, inefficiency still remains as an outside advisor cannot set the optimal fiscal restraint which induces each type to provide the optimal scale of public goods, due to asymmetric information on the incumbent's type and asymmetric information on the composition of expenditure. The employed outside advisor attempts to minimize the efficiency loss by setting a fiscal cap appropriately. If the incumbent politician can commit to the fiscal discipline set by this outside advisor, and if his level of competence is low, he can avoid, although not completely, wasteful expenditure subject to the fiscal constraint and be re-elected. If his level of competence is high, the scale of his public good provision is suppressed by the fiscal constraint below the level that he could choose without the constraint. However, he can then also be re-elected.

Our empirical analysis supports this hypothesis in the sense that the local governments with directors from the central government spend less. The possible benefits for the host local governments include effective communication with the central government, promising projects allocated by it and skills and knowledge of the central bureaucrats (e.g., Inoki 2001). If the main purpose of personnel interchange was to communicate local needs to the central government, the local governments that invite central bureaucrats should have spent more than those without them, *ceteris paribus*. Our empirical results do not support such a theory and instead show that inviting central bureaucrats has served to reduce both spending and debt. In addition, our results show that the local governments with central bureaucrats reduce investment in infrastructure so as to scale down both total expenditure and local debt without decreasing personnel expenses or subsidies and grants.

This paper is organized as follows. The following section (Section 2) provides a brief explanation of the institutional background. Section 3 presents a theoretical model that clarifies when a local politician invites an advisor as a commitment device, and why this works. Section 4 empirically tests our hypothesis that the advisor can help improve

fiscal situation of the local government using the Japanese panel data on prefectural governments. Section 5 presents the conclusions.

2 Institutional Background

Looking down from the top of the hierarchy³, we see that the Japanese public sector comprises a three-tier government: a central government, 47 prefectures, and about 1,800 municipalities. Prefectures and municipalities are considered as local authorities while each municipality is spatially contained within the boundary of a prefecture.

Japan is categorized as a unitary state. The central-local relations are considered as an “integrated” model (Muramatsu and Iqbal 2001) in which the local governments are assigned a large range of tasks, the competencies of the central and local governments are intertwined, and the central government steers the local governments through partnership. For example, a large proportion of public work projects is actually implemented on the initiative of local authorities. This system can be called “controlled decentralization,” because in it, the day-to-day operations of the local governments are monitored by the central government (Akizuki 2001).

Features of the Japanese intergovernmental relations include a large vertical fiscal imbalance and political and administrative linkages. Local expenditures of the local governments are about twice those of the central government, while the reverse is true for revenues. The Japanese local governments are highly dependent on fiscal transfers from the central government that subsidizes many public works projects. The main subsidies from the central government are categorized into two types: central government subsidies and local allocation tax grants. The former are purpose-specific grants, or in many cases matching grants, whereas the latter are general-purpose grants. In addition, advance consultation with the Minister of Home Affairs is required to issue local bonds.

Until FY 2005, the Japanese local governments were required to have the upper government’s approval to issue local bonds. They are required to have a prior consultation with the upper government even now. This does not necessarily mean that the central

³See Reed (1986) or Muramatsu et al. (2001) for political scientific analysis of Japanese intergovernmental relations.

government completely controls the issuance of local bonds, because revenues from local bonds are, in principle, earmarked for public works, and also because public works are often executed according to the local governments' administrative plans. These administrative plans often have to be arranged in a way consistent with the central government's plans. One way for the central government to implement these plans smoothly and successfully is to establish a cooperative relationship with localities at the very early stages of a project or during planning (Nishio 1990). This implies that the volume of local bond issuance is determined through negotiation and coordination. In this paper, we assume that the local government can control the volume of local bonds issuance because, as mentioned above, many public work projects are actually implemented on the initiative of local authorities.

Central bureaucrats have been important actors because the local governments could receive more funds if they could persuade bureaucrats in the ministries of the central government of their requirements and need for urgency. In particular, the Ministry of Home Affairs is supposed to play an important role in these negotiations as a spokesman for local interests vis-a-vis the other ministries in the central government while it also tries to control the local governments, as described by Muramatsu and Iqbal (2001). A unique system of the Japanese bureaucracy to which this paper pays attention is the personnel interchange between the central and local governments. Various forms of personnel interchange are observed: some prefectures invite a central bureaucrat, who is employed by the central government, to act as a vice-governor or a director of a department. He will return to the central government after working there for a certain period. Conversely, some prefecture officers are sent to the central government on loan. Inoki (2001) examines the pattern and magnitude of these interchanges with the emphasis on differences between ministries.

These personnel interchanges are of mutual benefit to both the central and local governments (Akizuki 2001, Inatsugu 2000, Inoki 2001). The literature presents some motivations for the central government. These include 1) central government can control or monitor localities effectively; 2) since the local governments sometimes do not possess sufficient skills and experiences, central bureaucrats must supplement their ability to

implement policies formulated at the central government level; 3) working in a local government is “highly educational” on the administrative front and makes it possible to increase human capital in the form of policymakers through on-the-job training.

Local governments also benefit greatly from these personnel interchanges. Inatsugu (2000) suggests five reasons for welcoming central bureaucrats. First, the officers on loan serve as a communication pipeline with the central ministries⁴. Second, officers on loan can assist the local governments when there is a shortfall in human resources. Third, they are expected to bring new energy to the localities. Fourth, as “new” staff, they can help in implementing drastic policy changes. Fifth, they work as breakwaters for governors because of their characteristics as outsiders in the localities, thus balancing the powers in local politics.

In this paper we focus on the role of central bureaucrats on loan as “new” staff invited from outside. The reasons are as follows. First, although the central government enjoys some benefits from personnel interchanges, these interchanges occur, in principle, following a request from the local governments as emphasized by the central ministries. Second, as Inatsugu (2000) mentions, by the late 1980s, the local governments had begun to cultivate human resources, and thus the need for assistance or supplements from central bureaucrats had already decreased. Third, the local governments in our sample period suffered from fiscal problems and had to regain fiscal discipline through policy changes.

3 Theoretical Consideration

3.1 Framework

A local government collects tax. It can use tax revenues to provide public goods for its district. Alternatively, tax revenues can be used for the interests of a politician who forms the government, e.g., for benefiting special interests and receiving pecuniary or non-pecuniary favors from them in return, or for his private use; then tax revenues cannot

⁴Shimokobe (1994) also points out that the local government can effectively communicate with the central government by placing a central government officer as a prefecture director.

serve a resident's welfare. The local government thus follows a budget constraint

$$g + s = \gamma, \quad (1)$$

where $g(\geq 0)$ denotes the amount of local public funds which are used for providing local public goods; $s(\geq 0)$ denotes the amount of rent diversion for private purposes; $\gamma(\geq 0)$ denotes the amount of local tax collections. The allocation of funds γ between g and s can be only observed by the politician; other agents including a citizen and an independent advisor cannot observe it.

Consider a representative citizen who lives in this district. The citizen's utility is given by

$$u = \alpha f(g) - \beta c(\gamma), \quad (2)$$

where functions f and c follow the properties of $f' > 0$, $f'' < 0$, $c' > 0$, and $c'' > 0$, and the values of a pair of parameters (α, β) depend on the level of administrative competence, or *type*, of the incumbent politician who forms the local government and makes decision on taxation and public good provision. We have one of two possible types of politicians: a competent one (*type h*) or an incompetent one (*type l*), with the respective prior probabilities of π_h and $\pi_l (= 1 - \pi_h)$, $0 < \pi_h < 1$. A politician's competence is thus featured by (α_k, β_k) , $k = h, l$. A competent politician can use a given amount of funds to supply public goods in a more effective and efficient manner than an incompetent one, and accordingly he can provide a higher quality or a higher quantity of public goods. This contributes to the citizen's welfare. Thus, in (2), $\alpha f(g)$, $\alpha \in \{\alpha_h, \alpha_l\}$, $\alpha_h > \alpha_l > 0$, represents the benefit from public goods. Furthermore, a competent politician can collect a given amount of taxes more efficiently than an incompetent one. In (2), $\beta c(\gamma)$, $\beta \in \{\beta_h, \beta_l\}$, $\beta_l > \beta_h > 0$, represents the cost for the citizen to pay a tax amount equal to γ . We suppose that a politician's competence level is private information; other agents do not know it. Furthermore, the scale of g is also private information possessed by the incumbent politician, as already stated. Suppose that it takes time for the benefit from public goods $\alpha f(g)$ and the cost associated with tax payment $\beta c(\gamma)$ to be clearly realized by the citizen; he can confirm them after election day. This supposition appears natural

since it is frequently pointed out that positive and negative effects of policies are revealed with a lag, in particular policies such as public work projects.

The first task of the incumbent politician is to decide whether to appoint an independent expert on fiscal policies (a central bureaucrat) as his advisor. We can regard this appointment of the external agent as a device for fiscal discipline, similar to the delegation of a decision on monetary policies to independent experts. The incumbent politician is engaged in this task before knowing his own competence level. It appears plausible to suppose that even an experienced politician may feel uncertainty or anxiety about his competence, since any politician's administrative competence or leadership ability is exemplified depending on policy fields or economic and political circumstances. We suppose that the politician obeys the appointee's instructions. Disobedience would impose a cost upon the appointer by breaking the cooperative relations between the central and local governments in other policy fields.

After considering the appointment of an advisor and knowing his competency level, the incumbent politician decides the amount of taxes levied on the citizen and the amount of public funds used for public good provision. According to (1), divergence between them corresponds to wasteful expenditure. Facing constraint (1) and subject to the appointee's instruction, if any, the incumbent maximizes his payoff, which is given by

$$v = u + s + pR, \tag{3}$$

where p is a probability for the incumbent to be re-elected; $R(> 0)$ denotes ego-rent he will enjoy if re-elected. Definition (3) means that a politician is partly benevolent and partly opportunistic. He cares about both the citizen's welfare and his own interests. Alternatively, the definition (3) could be interpreted as representing that the politician acts according to the interests of the citizen since it profits him by enhancing his reputation and popularity.

The appointed advisor, by optimally setting the cap $\hat{\gamma}(\geq 0)$ upon tax collection, which coincides with total expenditure under the balanced-budget constraint (1), attempts to maximize the citizen's expected utility:

$$E[u], \tag{4}$$

where $E[\cdot]$ is the expectation operator. The advisor can only have expectations about the incumbent politician's choices, which depend on the politician's possible types or competency levels. The advisor is thus assumed to be benevolent as a non-elected independent agent. Note that as (2) and (3) suggest, sources of inefficiency are asymmetric information on the incumbent politician's type and asymmetric information on the allocation of public funds γ between welfare-improving expenditure g and wasteful expenditure for the incumbent himself s . The wasteful expenditure is a welfare loss. The employed external advisor attempts to minimize the welfare loss by setting an appropriate fiscal cap on the incumbent politician's total expenditure. However, inefficiency still remains since the external advisor cannot set the optimal fiscal restraint that induces *each type* to provide the optimal scale of public goods, due to asymmetric information on the incumbent's type and asymmetric information on the composition of expenditure.

The representative citizen casts a vote at an election that is contested by the incumbent politician and a challenger. Each candidate's competence is drawn from the same prior distribution, but the citizen can make inferences on the incumbent politician's competence level on the basis of his observation. The citizen retrospectively sets the probability of re-electing the incumbent p according to the following rule:

$$p = \begin{cases} 1, & \tilde{\pi}_h(\gamma) \geq \pi_h; \\ 0, & \text{otherwise,} \end{cases} \quad (5)$$

where $\tilde{\pi}_h(\gamma)$ is the posterior probability weight that the citizen attaches to the possibility of the incumbent politician being type h . This voting rule (5) implies that the citizen prefers a more competent politician.⁵ The advantage of the incumbent politician over a

⁵The game in our model comprises of one period as shown immediately. The citizen's behavior to vote for a candidate who is more likely to be type h might have a direct rationale if we extended the horizon of the game to two periods in such a way that in the second (final) period, in selecting his strategy, any type of incumbent need not manipulate the voter's recognition of his type in the absence of electoral concerns and further $\alpha_h f(z_h) - \beta_h c(x_h) > \alpha_l f(z_l) - \beta_l c(x_l)$ is assumed, where (x_k, z_k) is defined in (8) later as a pair of type k 's total expenditure and expenditure for public goods under symmetric information and hence $\alpha_k f(z_k) - \beta_k c(x_k)$ is the citizen's welfare realized by type k in this environment. In order to concentrate on studying an external advisor's role and finding out empirical evidence about it, however, we abstain from extending a time-horizon of the game in our model.

challenger is assumed in (5): if the citizen is indifferent for both of them, he selects the incumbent.

The timing of the game is as follows:

1. the incumbent politician makes a decision on the appointment of an external agent as his advisor. If he appoints an advisor, the game continues to stage 2; otherwise, the game skips stage 2 and continues to stage 3;
2. the advisor sets a fiscal cap $\hat{\gamma}$;
3. Nature draws the incumbent politician's competence from its prior distribution and only the incumbent politician observes it;
4. the incumbent politician selects the amount of tax collections γ and the expenditure level for public good provision g ;
5. an election is held where the citizen determines the probability of re-electing the incumbent politician p .

As already supposed, there is a lag until the citizen realizes the benefit from public goods $\alpha f(g)$ and the associated welfare loss from taxation $\beta c(\gamma)$ clearly. He confirms them after election day.

We denote the incumbent politician's decision at stage 1 by $\xi \in \{a, n\}$, where a and n stand for "appointment" and "non-appointment," respectively. Then the strategy of the incumbent politician is represented as $(\xi, ((\gamma_h^a, g_h^a), (\gamma_l^a, g_l^a)), ((\gamma_h^n, g_h^n), (\gamma_l^n, g_l^n)))$, where with $k \in \{h, l\}$ denoting the incumbent politician's type, $\gamma_k^\xi (g_k^\xi)$ is type k 's choice of total expenditure level (expenditure level for public good provision), conditional on his choice of ξ . This usage of superscripts and subscripts is also applied to other variables. The strategy of the representative citizen is given by $(p^a(\gamma), p^n(\gamma))$, since he can only observe γ , not g and s separately. The strategy of an appointee is given by $(\hat{\gamma})$. We explore a perfect Bayesian equilibrium of this game by examining it backward. An equilibrium is marked by superscript $*$ and should be represented by a list $\{(\xi^*, ((\gamma_h^{a*}, g_h^{a*}), (\gamma_l^{a*}, g_l^{a*})), ((\gamma_h^{n*}, g_h^{n*}), (\gamma_l^{n*}, g_l^{n*}))); (\hat{\gamma}^*); (p^{a*}(\gamma), p^{n*}(\gamma))\}$, but in order to

get testable policy predictions, we will concentrate on characterize properties of the equilibrium outcomes.

3.2 Equilibrium

The Incumbent's Choice of γ and g , Conditional on His Choice of $\xi = n$

Examine the incumbent politician's choice of γ and g at stage 4, given that he did not appoint an advisor at stage 1, and hence no fiscal cap is imposed.

As a preliminary, suppose symmetric information. The incumbent politician faces a fixed probability of re-election, i.e., 1 for type h and 0 for type l , irrespective of their policy choice. Then, type k , $k = h, l$, chooses γ_k^n and g_k^n that maximize

$$u + s_k^n = \alpha_k f(g_k^n) - \beta_k c(\gamma_k^n) + (\gamma_k^n - g_k^n). \quad (6)$$

Assuming internal solutions that satisfy $\gamma_k^n > g_k^n$, the associated first-order conditions are

$$\alpha_k f'(g_k^n) = \beta_k c'(\gamma_k^n) = 1. \quad (7)$$

It follows from (7) that the scale of g_k^n is smaller than the social optimum that should satisfy $\alpha_k f'(g_k^n) = \beta_k c'(g_k^n)$, due to rent diversion. From (7), we have

$$\begin{aligned} \gamma_k^n &= (c')^{-1} \left(\frac{1}{\beta_k} \right) \equiv x_k; \\ g_k^n &= (f')^{-1} \left(\frac{1}{\alpha_k} \right) \equiv z_k. \end{aligned} \quad (8)$$

It follows from the properties of functions f and c that $x_h > x_l$ and $z_h > z_l$ in (8). Thus, in the case of symmetric information, type h collects a larger scale of taxes, and uses a larger scale of funds to supply public goods, due to his high competence.

Then revert to a case of asymmetric information. It follows from (5) and (8) that with the citizen's beliefs of $\tilde{\pi}_h(x_h) = 1$ and $\tilde{\pi}_h(x_l) = 0$, $((\gamma_h^{n*}, g_h^{n*}), (\gamma_l^{n*}, g_l^{n*})) = ((x_h, z_h), (x_l, z_l))$ constitutes a separating equilibrium when the following condition holds:

$$\alpha_l f(z_l) - \beta_l c(x_h) + (x_h - z_l) + R < \alpha_l f(z_l) - \beta_l c(x_l) + (x_l - z_l). \quad (9)$$

We suppose that type l would select to mimic type h if (9) held with equality. This supposition reflects the fact that election is an important matter for politicians.

Note that (9) holds iff the parameter values satisfy the following relation:

$$R < \beta_l c(x_h) - x_h - [\beta_l c(x_l) - x_l]. \quad (10)$$

Note that R on the left-hand side of (10) is ego-rent, which type l can enjoy only if he mimics type h and manipulates the citizen's assessment, while the terms on the right-hand side together represent an increase in net welfare loss from taxation, which is also caused by mimicking. It follows from (8) that $-\beta_l c(x_l) + x_l > -\beta_l c(x_h) + x_h$. Accordingly, (10) describes that the incumbent politician's concerns on the citizen's welfare exceeds his selfish motivation for mimicking. The relation (10) is likely when mimicking is costly due to a great divergence between x_h and x_l .

In the similar manner, $((\gamma_h^{n*}, g_h^{n*}), (\gamma_l^{n*}, g_l^{n*})) = ((x_h, z_h), (x_h, z_l))$ constitutes a pooling equilibrium if the citizen's beliefs are such that $\tilde{\pi}_h(x_h) = \pi_h$ and pretending to be type h benefits type l more than choosing any other policy. This requires

$$\alpha_l f(z_l) - \beta_l c(x_h) + (x_h - z_l) + R \geq \alpha_l f(z_l) - \beta_l c(x_l) + (x_l - z_l). \quad (11)$$

Note that the citizen's beliefs are not restricted by Bayes' rule at the decision nodes on the information set off the equilibrium path. This in general generates multiple equilibria in a signaling game between the incumbent politician and voters. We show in the Appendix that whether separating or pooling, an equilibrium including type h 's choice of x_h can survive Cho and Kreps's (1987) Intuitive Criterion, which rules out *unintuitive* equilibria depending on the concept of *equilibrium domination*. It is further shown in the Appendix that a separating equilibrium including type h 's choice of x_h is a unique separating equilibrium which survives the Intuitive Criterion.

Consequently, from (8) to (11), we derive $(\gamma_k^{n*}, g_k^{n*})$, $k = h, l$, as

$$\begin{aligned} (\gamma_h^{n*}, g_h^{n*}) &= (x_h, z_h); \\ (\gamma_l^{n*}, g_l^{n*}) &= \begin{cases} (x_h, z_l), & \text{if } R \geq \beta_l c(x_h) - x_h - [\beta_l c(x_l) - x_l]; \\ (x_l, z_l), & \text{otherwise.} \end{cases} \end{aligned} \quad (12)$$

The Incumbent's Choice of γ and g , Conditional on His Choice of $\xi = a$

We then examine a case where an advisor was appointed at stage 1 and he set a fiscal cap $\hat{\gamma}$ at stage 2.

First, consider type h 's choice. If $\hat{\gamma} \geq x_h$ is given, then type h 's equilibrium choice of total expenditure and expenditure for public good provision is still given by $(\gamma_h^{a*}, g_h^{a*}) = (x_h, z_h)$. As shown in the Appendix, an equilibrium including type h 's this choice is an intuitive equilibrium. If $z_h \leq \hat{\gamma} < x_h$, total expenditure level x_h can no longer be realized. While type h keeps the expenditure level for public goods unchanged, he totally spends up to the level $\hat{\gamma}$, since $-\beta_k c(\gamma) + \gamma$ in the incumbent politician's payoff (3) is continuous and strictly concave, and it could take its maximum at x_k without any fiscal cap. Accordingly, $(\gamma_h^{a*}, g_h^{a*}) = (\hat{\gamma}, z_h)$. Furthermore, if $\hat{\gamma} < z_h$, either x_h or z_h can not be realized any more. Then $(\gamma_h^{a*}, g_h^{a*}) = (\hat{\gamma}, \hat{\gamma})$.

Next, consider type l 's choice. He sets $\gamma_l^{a*} = \gamma_h^{a*}$ if the parameter values are such that being pooled with type h benefits type l . Otherwise, he chooses to be separated from type h .

Thus, we derive $(\gamma_k^{a*}, g_k^{a*})$, $k = h, l$, as

$$\begin{aligned}
(\gamma_h^{a*}, g_h^{a*}) &= (\min[x_h, \hat{\gamma}], \min[z_h, \hat{\gamma}]); \\
(\gamma_l^{a*}, g_l^{a*}) &= \begin{cases} (\min[x_h, \hat{\gamma}], \min[z_l, \hat{\gamma}]), & \text{if } R \geq \beta_l c(\min[x_h, \hat{\gamma}]) - \min[x_h, \hat{\gamma}] \\ & - [\beta_l c(\min[x_l, \hat{\gamma}]) - \min[x_l, \hat{\gamma}]]; \\ (\min[x_l, \hat{\gamma}], \min[z_l, \hat{\gamma}]), & \text{otherwise.} \end{cases} \quad (13)
\end{aligned}$$

Advisor's Choice of $\hat{\gamma}$

Now consider the appointee's decision on $\hat{\gamma}$ at stage 2. Note again that $z_l < z_h$ and $x_l < x_h$. In anticipation of the incumbent's and the citizen's subsequent optimal responses, the appointee's payoff in (4) is continuous, but undifferentiable at z_l , z_h , x_l , and x_h .

It is straightforward that any fiscal cap such that $\hat{\gamma} > z_h$ is not optimal, since this allows each type to make wasteful expenditure by imposing extra tax upon the citizen. Also, $\hat{\gamma} < z_l$ is not optimal, since with $\hat{\gamma} < z_l < z_h$, $z_k < x_k$, and (7) and (8), for each k , $k = h, l$,

$$\alpha_k f'(z_k^n) - \beta_k c'(x_k^n) = 0 < \alpha_k f'(z_k^n) - \beta_k c'(z_k^n) < \alpha_k f'(\hat{\gamma}) - \beta_k c'(\hat{\gamma}), \quad (14)$$

where the second inequality derives from strict concavity of $\alpha_k f(\cdot) - \beta_k c(\cdot)$, and hence it cannot maximize the appointee's payoff in (4) that is the weighted sum of the citizen's

utility with each type k . Again, from the continuity of the payoff, the advisor's optimal choice of $\hat{\gamma}$ should be included within the interval $[z_l, z_h]$.

Let $z_h \leq x_l$ (and therefore $z_l < z_h \leq x_l < x_h$). Then the advisor, by choosing a fiscal cap from the interval $[z_l, z_h]$, pools type l 's choice of total expenditure level with type h 's one. He can improve the citizen's expected utility by balancing welfare loss associated with type h 's reduction in public good provision and welfare gain from controlling type l 's rent diversion. Thus, with (13), employing $\hat{\gamma} \in [z_l, z_h]$, he attempts to maximize

$$\pi_h [\alpha_h f(\hat{\gamma}) - \beta_h c(\hat{\gamma})] + \pi_l [\alpha_l f(z_l) - \beta_l c(\hat{\gamma})]. \quad (15)$$

The first derivative of (15) with regard to $\hat{\gamma}$ gives us the unique maximizer, which may be an internal solution or a corner solution. In order to make presentation simple, we will define the following function which gives us the unique maximizer $\hat{\gamma}$ within the domain $[\underline{\gamma}, \bar{\gamma}]$:

$$\hat{\gamma}(\underline{\gamma}, \bar{\gamma}) = \begin{cases} \underline{\gamma}, & \text{if } \pi_h \alpha_h f'(\underline{\gamma}) - (\pi_h \beta_h + \pi_l \beta_l) c'(\underline{\gamma}) < 0; \\ \gamma' \in [\underline{\gamma}, \bar{\gamma}], & \text{if } \pi_h \alpha_h f'(\gamma') - (\pi_h \beta_h + \pi_l \beta_l) c'(\gamma') = 0; \\ \bar{\gamma}, & \text{if } \pi_h \alpha_h f'(\bar{\gamma}) - (\pi_h \beta_h + \pi_l \beta_l) c'(\bar{\gamma}) > 0. \end{cases} \quad (16)$$

Now we can represent the advisor's equilibrium choice in this case as $\hat{\gamma}^* = \hat{\gamma}(z_l, z_h)$. Thus the optimal fiscal cap solves the trade-off between relaxing restraint on type h 's public good provision and associated taxation to finance it and suppressing wasteful expenditure by type l .

Let $z_h > x_l$. Then, a fiscal cap set at z_h , which does not hinder type h 's public good provision, and a fiscal cap set at $\hat{\gamma}(z_l, x_l)$, which is included within the interval $[z_l, x_l]$ and solves the trade-off, are candidates of the advisor's optimal choice.

Accordingly, the advisor's equilibrium strategy is summarized as

$$\hat{\gamma}^* = \begin{cases} \hat{\gamma}(z_l, z_h), & \text{if } z_h \leq x_l; \\ \hat{\gamma}(z_l, x_l), & \text{if } z_h > x_l \text{ and} \\ & \pi_l [-\beta_l c(\hat{\gamma}(z_l, x_l)) + \beta_l c(x_l)] \\ & \geq \pi_h \{ \alpha_h f(z_h) - \beta_h c(z_h) - [\alpha_h f(\hat{\gamma}(z_l, x_l)) - \beta_h c(\hat{\gamma}(z_l, x_l))] \}; \\ z_h, & \text{otherwise.} \end{cases} \quad (17)$$

The Incumbent Politician's Decision on Appointment

Finally, we examine the incumbent politician's decision at stage 1. He chooses $\xi = a$, not $\xi = n$, iff

$$E[v|a] > E[v|n], \quad (18)$$

where $E[v|\xi]$ represents the expectation of v conditional on ξ being chosen. It is straightforward that a fiscal cap z_h which induces a separating equilibrium cannot satisfy (18), since this cap hinders type h 's rent diversion. Therefore, $\xi^* = n$ with $\hat{\gamma}^*$ for the third case in (17). Then, we will examine the incumbent's choice for the first and second cases in (17), where if he appoints an advisor, the equilibrium fiscal cap $\hat{\gamma}^*$ will induce a pooling equilibrium.

Let $R < \beta_l c(x_h) - x_h - [\beta_l c(x_l) - x_l]$, and hence conditional on an external advisor being unemployed, a separating equilibrium will be an outcome, since mimicking is costly. From (12), (13), and (17), $((\gamma_h^{n*}, g_h^{n*}), (\gamma_l^{n*}, g_l^{n*})) = ((x_h, z_h), (x_l, z_l))$ and $((\gamma_h^{a*}, g_h^{a*}), (\gamma_l^{a*}, g_l^{a*})) = ((\hat{\gamma}^*, \hat{\gamma}^*), (\hat{\gamma}^*, z_l))$. Then

$$\begin{aligned} E[v|a] &= \pi_h [\alpha_h f(\hat{\gamma}^*) - \beta_h c(\hat{\gamma}^*) + R] + \pi_l [\alpha_l f(z_l) - \beta_l c(\hat{\gamma}^*) + (\hat{\gamma}^* - z_l) + R]; \\ E[v|n] &= \pi_h [\alpha_h f(z_h) - \beta_h c(x_h) + (x_h - z_h) + R] + \pi_l [\alpha_l f(z_l) - \beta_l c(x_l) + (x_l - z_l)] \end{aligned} \quad (19)$$

With (19), condition (18) is equivalent to

$$\begin{aligned} &\pi_l \{R - [(\beta_l c(\hat{\gamma}^*) - \hat{\gamma}^*) - (\beta_l c(x_l) - x_l)]\} \\ &> \pi_h \{\alpha_h f(z_h) - \beta_h c(x_h) + (x_h - z_h) - [\alpha_h f(\hat{\gamma}^*) - \beta_h c(\hat{\gamma}^*)]\} > 0. \end{aligned} \quad (20)$$

Note that the expression in curly parentheses after the first inequality represents a reduction in type h 's payoff by being imposed a cap $\hat{\gamma}^*$. Note again that $-\beta_k c(\gamma) + \gamma$ is strictly concave in γ and is maximized at x_k from (8). The condition $R < \beta_l c(x_h) - x_h - [\beta_l c(x_l) - x_l]$ indicates that x_h is diverged enough from x_l . Accordingly, (20) holds, and therefore $\xi^* = a$, when $\hat{\gamma}^*$ is sufficiently close to x_l , compared to x_h , π_h is sufficiently small, and R is sufficiently large.

Let $R \geq \beta_l c(x_h) - x_h - [\beta_l c(x_l) - x_l]$, and hence conditional on an external advisor being unemployed, a pooling equilibrium will be an outcome. Then $((\gamma_h^{n*}, g_h^{n*}), (\gamma_l^{n*}, g_l^{n*})) =$

$((x_h, z_h), (x_h, z_l))$ and $((\gamma_h^{a^*}, g_h^{a^*}), (\gamma_l^{a^*}, g_l^{a^*})) = ((\hat{\gamma}^*, \hat{\gamma}^*), (\hat{\gamma}^*, z_l))$ from (12), (13), and (17).

Therefore, we can derive the following relation:

$$\begin{aligned} E[v|a] &= \pi_h [\alpha_h f(\hat{\gamma}^*) - \beta_h c(\hat{\gamma}^*) + R] + \pi_l [\alpha_l f(z_l) - \beta_l c(\hat{\gamma}^*) + (\hat{\gamma}^* - z_l) + R]; \\ E[v|n] &= \pi_h [\alpha_h f(z_h) - \beta_h c(x_h) + (x_h - z_h) + R] + \pi_l [\alpha_l f(z_l) - \beta_l c(x_h) + (x_h - z_l) + R]. \end{aligned}$$

With (21), condition (18) is equivalent to

$$\begin{aligned} &\pi_l \{ -[(\beta_l c(\hat{\gamma}^*) - \hat{\gamma}^*) - (\beta_l c(x_h) - x_h)] \} \\ &> \pi_h \{ \alpha_h f(z_h) - \beta_h c(x_h) + (x_h - z_h) - [\alpha_h f(\hat{\gamma}^*) - \beta_h c(\hat{\gamma}^*)] \} > 0. \end{aligned} \quad (22)$$

The implication in (22) is similar to that in (20). The condition $R \geq \beta_l c(x_h) - x_h - [\beta_l c(x_l) - x_l]$ indicates that x_h is relatively close to x_l . Accordingly, (22) holds, and therefore $\xi^* = a$, when $\hat{\gamma}^*$ is sufficiently close to x_l , compared to x_h , and π_h is sufficiently small.

From these results, the equilibrium outcomes of this game are characterized by the following proposition:

Proposition 1. Let $z_h \leq x_l$, or $z_h > x_l$ and $\pi_l [-\beta_l c(\hat{\gamma}(z_l, x_l)) + \beta_l c(x_l)] \geq \pi_h \{ \alpha_h f(z_h) - \beta_h c(z_h) - [\alpha_h f(\hat{\gamma}(z_l, x_l)) - \beta_h c(\hat{\gamma}(z_l, x_l))] \}$. Furthermore, let parameter values be such that the equilibrium fiscal cap $\hat{\gamma}^* = \hat{\gamma}(z_l, \min[z_h, x_l]) \in [z_l, \min[z_h, x_l]]$, which the employed advisor will set, is sufficiently close to x_l and the prior probability of type h , π_h , is sufficiently low. Then an incumbent politician appoints an external agent as his advisor. Conditional on appointment, types h and l select total expenditure level at $\hat{\gamma}^*$ in equilibrium. Otherwise, an external advisor is not employed.

As Proposition 1 demonstrates, an external advisor is appointed by the incumbent politician when the advisor is expected to make type l 's mimicking more attractive by suppressing type h 's total expenditure with a fiscal constraint, and furthermore a low probability weight is attached to type h 's loss under this restraint.

Theoretical Prediction

Proposition 1 and (12) enables us to compare the total expenditure level in the case where $\xi^* = a$ and hence an advisor is appointed, with that in the case where $\xi^* = n$ and hence

no advisor is appointed. This comparison suggests that, conditional on the appointment of an advisor, either of the incumbent types selects the same scale of total expenditure $\hat{\gamma}^* \in [z_l, \min[z_h, x_l]]$, while without an appointment, type h chooses x_h and type l chooses x_l in the separating equilibrium; both types select x_h in the pooling equilibrium. Note again that $\hat{\gamma}^* \leq x_l < x_h$. Thus, the total expenditure level conditional on appointment is lower than the level without appointment, except for the special case of $\hat{\gamma}^* = x_l$. In the following section, we will test our theoretical prediction that appointment of an advisor works to reduce the scale of total expenditure with the data.

4 Empirical Evidence

4.1 Estimation equation

Our hypothesis is that an advisor is a commitment device to maintain fiscal discipline. In the Japanese case, a central bureaucrat working on loan for the local government can play a role as an advisor, as discussed in Section 2. Thus, to test this hypothesis, we now examine how central bureaucrats affect the government's fiscal variables. We consider those central bureaucrats working on loan for the local governments as vice-governors and department directors. Our basic equation to be estimated is

$$g_{i,t} = \beta_1 \xi_{i,t} + \beta_2 Z_{i,t} + \beta_3 X_{i,t} + \beta_4 g_{i,t-1} + v_i + u_{i,t} \quad (23)$$

where $g_{i,t}$ represents a fiscal variable such as expenditures or debt outstanding, $\xi_{i,t}$ represents an advisor, $Z_{i,t}$ is a vector of the characteristics of governor, $X_{i,t}$ is a vector of other explanatory variables including time trend, v_i is a prefecture-specific unobservable effect, and $u_{i,t}$ is an error term. Some components of $X_{i,t}$ are correlated with the future error terms but not with the past error terms (predetermined), as explained below. i is an index for the prefectural governments, and t is that for the fiscal years.

A separate regression equation is estimated for each budget variable. In all regressions, we are interested in the coefficients of advisors and governors, β_1 and β_2 . Because advisors set a fiscal cap, β_1 is expected to be negative when the dependent variable $g_{i,t}$ is expenditure or debt outstanding.

We estimate the regression equation (23) in differences in order to remove the prefecture-specific effects. The one-step GMM estimation by Arellano and Bond (1991) is employed because it is a standard approach in dynamic panel data models (Bond 2002). Our choice of the specification is reported in detail after the description of our dataset.

4.2 Data

Our data is for Japanese upper-tier local (prefectural) governments over the period 1998–2006. Because Japan is a unitary state, all of these 47 prefectures are covered by the same constitutional rules, national laws, and electoral systems. In addition, they share a relatively similar system of internal subdivisions. For every fiscal year, the central government publishes account settlements under the same accounting standard from which we use the data on fiscal variables. Although the approval system of local bonds was reformed in 2005, as mentioned in Section 2, the local governments must still consult with the upper governments. Thus we assume that the local governments' behavior did not change dramatically, taking into account the integrated nature of the central-local relations.

For the dependent variable, we use five types of budget variables: local bonds outstanding, net expenditures (total expenditures net of debt services), personnel expenses, subsidy expenses, and ordinary construction work expenses. The sum of personnel, subsidy, and ordinary construction work expenses accounts for more than 80 percent of total expenditures, on average. These fiscal variables are converted to a real and per capita basis.

The advisor variables are constructed based on the reports from the Ministry of Internal Affairs and Communications (MIC, hereafter) and from Nikkei Glocal. MIC has reported "Cases of Intergovernmental Personnel Exchange between the Central and Local Government (Kuni to chiho-kokyo-dantai tonno aida no jinji-koryu-jokyo)" since 2001, and these have been published in accordance with the Decentralization Reform Promotion Plan in order to improve the accountability or transparency of personnel interchange. Nikkei Glocal, a monthly magazine, has provided detailed information on personnel interchange once a year since 1996. We use the data from MIC over the period 2001–2006 and

from Nikkei Glocal over the period 1996-2000. Two positions in prefectural governments are considered in this paper. One is the vice-governor, and the other is the director of general affairs. The Local Autonomy Law stipulates that the prefectural governments must have at least one vice-governor. Although the prefectural governments can opt out of this clause, many have more than one vice-governor. We also focus on the general affairs directors because this position manages the budget process. In addition to the usual dummy that takes “1” if a central bureaucrat occupies the position (one of the vice-governors or the general affairs director), we include two dummies based on the original ministry. The first dummy takes “1” if the central bureaucrat comes from MIC, and the other dummy takes “1” if he comes from any other ministry. Thus the sum of these two dummies is equal to the first one.

Explanatory variables on the characteristics of governors include their former jobs, share of votes, and the term of office. In case of former jobs, we made a dummy for the bureaucrat-turned-governors. The shares of votes in the last election are listed into each year. Considering that our theoretical model is a re-election model, a dummy for the last year of the term is used. The term of governorship is four years, and re-election is not prohibited. The timings of elections are assumed to be exogenous, because an election does not renew the term if it is held before the termination of the term and the incumbent governor wins⁶. The dummy for the last year takes “1” if the governor does not contest for the election in the following year. In other words, even if the current year is the last year of the governor’s term, this dummy takes “zero” if the governor contests for re-election. The years of governorship are also included.

Other control variables in our base estimation include the share of construction industry in gross regional (prefectural) product (GRP), amount of subsidies from the central government and local tax revenues (converted to a real and per capita basis), ratio of population of the old (those older than 65 years), job opening-to-application ratio, and a linear time trend.

Descriptive statistics are shown in Table 1.

⁶Japanese Cabinets tend to manipulate the timing of the election of members of the House of the Representatives (see, e.g., Ito and Park 1988, Cargill and Hutchinson 1991).

4.3 Instrumental variables

Explanatory variables are categorized into exogenous variables, predetermined variables, and endogenous variables.

We assume the time trend, ratio of population of the old, tax revenues, share of the construction industry, job opening-to-application ratio, and the variables on the characteristics of governors as exogenous variables. Economic variables, such as tax revenues, share of construction industry, and job opening-to-application ratio, may be affected by fiscal policies. The Hansen's J statistics, however, does not reject the hypothesis that these variables are exogenous, as mentioned below. In addition, the estimated coefficients do not change dramatically if these economic variables are treated as predetermined.

Other variables, such as the lagged dependent, the advisor, and the subsidies are all treated as endogenous. The advisor variables are endogenous, because our theory assumes that a governor may call for advisors to maintain fiscal discipline. Taking into account the integrated nature of the central-local relations, the amount of subsidies from the central government are determined in accordance with local expenditure variables, and therefore these variables too are considered to be endogenous.

The Arellano-Bond difference GMM estimator uses two types of instruments, "IV-style" ones and "GMM-style" ones (Roodman 2008). The "IV-style" instruments are the exogenous variables, while the "GMM-style" ones are the lagged variables of the endogenous variables. In order to avoid a problem of too many instruments (Roodman 2008), the second lag of the endogenous variables are used as "GMM-style" instruments. The lagged dependent variable is also used as a "GMM-style" instrument. Because we cannot reject the null hypothesis that the error term has a first-order serial correlation, the third lag of the dependent variable is included as an instrument.

4.4 Results

Before moving on to the main regression analysis, let us briefly compare the fiscal situation among the prefectures with and without a director of general affairs transferred from the central government. Table 2 picks up the average of two variables, local bonds outstanding and ordinary construction work expenses. Both figures are larger for those prefectures

with directors from the central government , which seems inconsistent with our theoretical prediction. It may be possible, however, that fiscally unhealthy prefectures tend to invite advisors in order to avoid a fiscal crisis. Thus it is necessary to control other conditions to extract the effects of central bureaucrats as a commitment device.

Table 3 shows the estimation results on the effects of central bureaucrats. Columns (a) to (e) are considered as different dependent variables. In all cases, validity of the instruments is supported by Hansen's J statistics. Although statistically insignificant, the estimated negative coefficient of central bureaucrat dummies in column (a) suggests that if the vice-governors and general affairs director come from the central government, then the local bonds outstanding tends to be reduced. In order to reduce local debt, the local government should either increase revenues or decrease public expenditures. Because there is less flexibility on revenues in Japan (Mochida 2001, pp.96-97), we consider here the expenditures in detail. The results in column (b) show a statistically significant negative coefficient of the dummy for general affairs director from the central government, which means that the decrease in expenditure accounts for the reduced local debt.

Let us turn to the components of expenditures. We consider personnel expenses, subsidy expenses, and ordinary construction work expenses, the sum of which accounts for a large part of total expenditures, as mentioned above. The effects of central bureaucrats differ among the components. The vice-governors and directors sent from the central government have statistically significant positive effects on subsidy expenses, but not on personnel expenses. On the other hand, they have statistically significant negative effects on ordinary construction work expenses, which are mainly for investment in infrastructure. These results may be explained as follows. First, no effects on personnel expenses may be due to the "mandatory" or less flexible nature of these expenses. Personnel expenses include salaries and wages for civil officers, police officers, and teachers, the numbers of which are often stipulated by national laws. Second, the scaling down of subsidy expenditures is likely to be less acceptable than investment in infrastructure. One reason for this is that subsidy expenses include aids for medical expenses of the elderly and babies and for private schools. Another reason is that investment in infrastructures is less "voter-friendly" (Drazen and Eslava 2009) in this sample period in Japan, because the

marginal returns of public investment are perceived to have declined over time (Hubbard and Ito 2006, p.15). To sum up, the vice-governors and general affairs directors from the central government reduce the investment in infrastructure so as to scale down both total expenditure and local debt without reducing personnel expenses or subsidies and grants.

Estimation results in which differences in the original ministry for general affairs directors are allowed are listed in Table 4. We separate central bureaucrats of MIC from those of other ministries, in most cases the Ministry of Finance. The dummy for bureaucrats from MIC are estimated to have statistically significant negative coefficients in the equations of local bonds, total expenditure, and ordinary construction expenses, while positive coefficients in the equations of subsidy expenses. The estimated coefficients of bureaucrats from other ministries show the same sign pattern, but are not statistically significant in the equations of the components. This means that the directors sent from MIC engage more actively in the revision or reallocation of budget than those who are from other ministries, or are promoted internally. The task of MIC can account for such a difference in our sample period when many local governments were in fiscal difficulties. MIC has jurisdiction over local administration and finance, and so the bureaucrats of MIC may care about fiscal soundness of the local governments. The Ministry of Finance (MOF) has jurisdiction over the national budget, and is also interested in fiscal situation of the local governments, given the huge amount of intergovernmental transfers from the central to local governments. It may be that the bureaucrats of MOF care about the total amount of expenditures because this total amount affects the national budget.

In both Tables 3 and 4, most coefficients of the characteristics of the governors are not estimated to be statistically significantly different from zero. Our results do not seem to be consistent with a political budget cycle hypothesis; however, they are in line with the literature that suggests that political budget cycle is a phenomenon in new democracy (e.g., Brender and Drazen 2005, Shi and Svensson 2006).

Among other variables, the share of construction industry in regional economy has statistically significant positive effects on total expenditures and on construction work expenses. Taking into account the strong connection between construction industry and public investment, this may reflect the tendency for the quality of a governor to be low

when the region is more dependent on construction industry. In other words, it is possible that the governor has been “captured” by that industry (e.g., Dal Bo 2006).

To close this section, let us consider the determinants for the invitation of advisors. Table 5 shows the estimation results of the equations in which the dependent variables are the number of central bureaucrats occupying the post of vice-governor and general affairs director. Column (a) shows the sum of these two positions, while columns (b) and (c) show individual positions. As for the characteristics of the governor, signs of the coefficients are either opposite between vice-governor and general affairs director, or are close to zero. The effect of the share of construction industry is, however, positive for both positions. This may reflect the governor’s belief in the high probability of “low” competence, or anxiety about being captured.

5 Concluding Remarks

This paper examines the effects of bureaucrats of the central government transferred to the local governments as a commitment device to promote fiscal discipline. We construct a simple politico-economic model in which a local politician chooses whether to invite a central bureaucrat as an advisor, in the hope of being re-elected. Our model sheds light on two facts in real politics. First, an incumbent politician’s rent diversion for his private purposes, or corruption, is not perfectly observable by other agents, such as the electorate and the invited bureaucrats. Therefore, it is difficult to enforce the optimal public good provision, by punishing the politician’s selfish behavior. Second, there is an informational asymmetry about the competence of a politician between the politician himself and other agents. For some ranges of the parameters, the politician decides to invite the advisor before he knows his own competence, because the advisor can pool the choices on spending by capable and less capable politicians into the same one by imposing a fiscal constraint on total spending; otherwise, turning out to be less capable, he could not mimic a capable politician and would consequently lose his job due to his low competency level. A capable politician without an advisor spends more because he is competent in providing public goods efficiently, while a less capable politician without an advisor also spends more because he is indulged in rent diversion. Our empirical analysis using the

Japanese panel data on prefectural governments supports our hypothesis that a politician with an advisor reduces local debt and spending. We assume that central bureaucrats transferred to the local governments as advisors are featured in our theoretical model.

We provide evidence that central bureaucrats play the role of enhancing fiscal discipline of the sub-national governments. Our results, however, depend on our supposition that local politicians accept the advice of central bureaucrats. In fact, politicians lack the credibility to impose fiscal discipline, because they have often ignored or changed the rules. Many kinds of fiscal rules have been proposed to remedy this situation. When and why these rules work remains an open question.

A Intuitive Equilibria

An equilibrium including $(\gamma_h^{n*}, \gamma_l^{n*})$ fails Cho and Kreps's (1987) Intuitive Criterion if there exists an out-of-equilibrium strategy γ such that

$$\alpha_h f(z_h) - \beta_h c(\gamma) + (\gamma - z_h) + R > \alpha_h f(z_h) - \beta_h c(\gamma_h^{n*}) + (\gamma_h^{n*} - z_h) + p^{n*}(\gamma_h^{n*}) \quad (A1)$$

$$\alpha_l f(z_l) - \beta_l c(\gamma) + (\gamma - z_l) + R < \alpha_l f(z_l) - \beta_l c(\gamma_l^{n*}) + (\gamma_l^{n*} - z_l) + p^{n*}(\gamma_l^{n*}) \quad (A2)$$

These conditions describe that even if choosing γ guarantees re-election, only type h will choose it, instead of γ_h^{n*} . Then the citizen's plausible beliefs will be $\tilde{\pi}_h(\gamma) = 1$. If such an out-of-equilibrium strategy exists, $(\gamma_h^{n*}, \gamma_l^{n*})$ cannot be included in an equilibrium outcome since deviation benefits type h . It is straightforwardly confirmed that any separating or pooling equilibrium including $\gamma_h^{n*} = x_h$ survives this criterion, and therefore is an intuitive equilibrium, since with $p^{n*}(\gamma_h^{n*}) = 1$, there exists no $\gamma \neq \gamma_h^{n*} = x_h$ which satisfies both (A1) and (A2).

Furthermore, we demonstrate that any separating equilibrium including $\gamma_h^{n*} \neq x_h$ fails this criterion, by showing the existence of an out-of-equilibrium strategy that can make only type h better off than in equilibrium.

With the citizen's least-restricted off-the-equilibrium-path beliefs $\tilde{\pi}_h(\gamma') = 0$ for any $\gamma' \neq \gamma_h^{n*}$, the necessary conditions for a separating equilibrium including γ_h^{n*} are given by

$$\alpha_h f(z_h) - \beta_h c(\gamma_h^{n*}) + (\gamma_h^{n*} - z_h) + R \geq \alpha_h f(z_h) - \beta_h c(x_h) + (x_h - z_h); \quad (A3)$$

$$\alpha_l f(z_l) - \beta_l c(\gamma_h^{n*}) + (\gamma_h^{n*} - x_l) + R < \alpha_l f(z_l) - \beta_l c(x_l) + (x_l - z_l). \quad (A4)$$

Each expression on the right-hand side of (A3) and (A4) shows the maximized payoff of types h and l , with the probability of their re-election being set at 0, which is generated from the citizen's beliefs $\tilde{\pi}_h(\gamma') = 0$ for $\gamma' \neq \gamma_h^{n*}$. From (A4) and the continuity and the strict concavity of each expression on the left-hand side of (A3) and (A4), when $\gamma_h^{n*} < x_h$ ($\gamma_h^{n*} > x_h$), there is a sufficiently small $\epsilon > 0$ such that $\gamma = \gamma_h^{n*} + \epsilon$ ($\gamma = \gamma_h^{n*} - \epsilon$) satisfies

$$\alpha_h f(z_h) - \beta_h c(\gamma) + (\gamma - z_h) + R > \alpha_h f(z_h) - \beta_h c(\gamma_h^{n*}) + (\gamma_h^{n*} - z_h) + R; \quad (\text{A5})$$

$$\alpha_l f(z_l) - \beta_l c(\gamma) + (\gamma - z_l) + R < \alpha_l f(z_l) - \beta_l c(x_l) + (x_l - z_l). \quad (\text{A6})$$

Conditions (A5) and (A6) mean that (A1) and (A2) hold with this γ since in (A1) and (A2), any separating equilibrium should involve $\gamma_l^{n*} = x_l$, $p^{n*}(\gamma_h^{n*}) = 1$, and $p^{n*}(\gamma_l^{n*}) = 0$. Thus, any separating equilibrium including $\gamma_h^{n*} \neq x_h$ cannot survive the Intuitive Criterion.

These discussions will also apply even if a type k incumbent politician's choice of γ_k^a faces a fiscal cap $\hat{\gamma}$. An equilibrium including $\gamma_h^{a*} = \min[x_h, \hat{\gamma}]$ is an intuitive equilibrium and a separating equilibrium including $\gamma_h^{a*} = \min[x_h, \hat{\gamma}]$ is a unique intuitive separating equilibrium.

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Table 1. Descriptive Statistics

	mean	std. dev.	max	min
<u>Fiscal situation</u>				
Local bond outstanding	691.52	225.59	1482.63	253.16
Total expenditure	477.99	135.98	934.21	201.81
Personnel expenses	136.98	21.69	192.09	90.17
Subsidy expenses	64.35	20.37	201.61	36.27
Construction works expenses	131.70	67.54	409.37	20.01
<u>Advisors</u>				
Vice-governor from central	0.388	0.488	1	0
Director from central	0.487	0.500	1	0
Director from MIC	0.433	0.496	1	0
Director from other ministries	0.054	0.227	1	0
<u>Governors</u>				
Last year of the term	0.059	0.236	1	0
Bureaucrat-turned-governor	0.284	0.451	1	0
Local-official-turned-governor	0.170	0.376		
Tenure as governor	7.927	5.582	25	1
Share of the votes (%)	65.18	16.06	100.00	29.10
<u>Other controls</u>				
Share of primary industries (%)	2.066	1.283	5.716	0.044
Share of construction industry (%)	7.045	1.874	12.580	4.077
Central subsidies	87.98	38.74	213.01	20.41
Local allocation tax grants	127.06	64.19	300.21	0.00
Tax revenues	112.48	40.55	412.19	70.44
Ratio of the young (%)	14.56	1.14	20.51	11.47
Ratio of the old (%)	20.24	3.17	27.58	11.53
Population density	6.42	11.08	57.88	0.67
Job opening-to-application ratio	0.581	0.262	1.920	0.160

(Note) The unit for fiscal situation variables (including central subsidies, local allocation tax grants, tax revenues) is thousand yen, and that for gross regional product is million yen (both are CY2000 price, per capita). All the advisors and governors variables are indicator variables. Shares of primary industries and construction industry and ratios of the young and the old are represented by percent, and the population density is measured by person per hectare.

Table 2. Average bond outstanding and construction works with or without advisors

FY	Local bond outstanding		Construction works expenses	
	with	without	with	without
1998	588.75	534.72	181.51	167.97
1999	642.25	565.89	174.77	158.48
2000	683.14	554.05	164.28	135.84
2001	698.33	616.24	154.49	131.22
2002	744.20	669.64	146.53	124.63
2003	820.91	676.63	137.47	104.32
2004	828.33	697.27	114.42	96.61
2005	817.71	744.87	104.35	93.28
2006	856.54	724.73	99.95	82.98

(Note) The unit for fiscal situation variables is thousand yen (both are CY2000 price, per capita). “With” means that the general affairs directors come from the central government.

Table 3. Effects of the central bureaucrats

	(a)	(b)	(c)	(d)	(e)
Dependent variable	Local bond outstanding	Net expenditure	Personnel expenses	Subsidy expenses	Construction works expenses
Lagged dependent		0.062 (0.08)	0.651 *** (0.10)	-0.092 (0.06)	0.220 *** (0.08)
Bond outstanding (<i>t</i> -1)	0.827 *** (0.03)	-0.187 *** (0.05)	0.004 (0.00)	0.021 ** (0.01)	-0.227 *** (0.04)
Vice gov. from central	-2.049 (5.54)	-7.248 (6.71)	-0.658 (0.58)	2.661 *** (0.90)	-7.562 * (4.12)
Director from central	-4.883 (4.82)	-12.745 ** (5.59)	1.307 ** (0.62)	3.449 ** (1.48)	-13.372 *** (4.57)
Last year of the term	-1.322 (4.09)	-1.492 (5.37)	-0.592 (0.54)	-0.876 (0.88)	-0.110 (2.04)
Bureaucrat-turned	-3.989 (5.67)	2.411 (6.61)	0.479 (1.00)	1.865 (1.61)	-2.391 (3.90)
Tenure as governor	0.521 (1.14)	-0.127 (1.66)	0.281 (0.20)	0.706 * (0.37)	-0.435 (0.91)
Share of the votes	0.107 (0.07)	-0.012 (0.07)	-0.013 (0.01)	-0.006 (0.02)	-0.042 (0.07)
Construction industry	3.503 *** (1.21)	6.846 *** (1.60)	-0.321 (0.23)	-0.228 (0.46)	4.627 *** (1.37)
Subsidies from central	-0.074 (0.07)	0.587 *** (0.10)	0.049 *** (0.01)	0.058 *** (0.02)	0.263 *** (0.07)
Tax revenues	-0.680 *** (0.08)	0.647 *** (0.16)	0.058 ** (0.02)	0.285 *** (0.03)	0.306 *** (0.10)
Ratio of the old	1.465 (5.61)	10.423 ** (4.57)	-0.863 (0.81)	1.660 (1.70)	5.728 (4.54)
Job opening ratio	-24.213 *** (4.38)	-13.212 ** (5.05)	0.353 (0.59)	-4.398 *** (1.35)	-11.893 *** (3.17)
Time Trend	4.392 (3.11)	-0.954 (3.44)	0.483 (0.45)	1.354 (1.24)	0.316 (3.09)
Arellano-Bond test					
AR(1) [p-value]	0.045	0.143	0.000	0.003	0.024
AR(2) [p-value]	0.818	0.438	0.181	0.249	0.157
# of IVs	51	51	51	48	51
# of obs	423	423	423	376	423
Hansen's J statistics	43.52	45.25	36.08	36.72	42.76

(Note) The estimation method is the one-step GMM estimation by Arellano-Bond. Vice-governor/director from the central (dummy) and subsidies from central are endogenous, while tax revenues, share of construction industry and job opening-to-application ratio, last year of the term (dummy), bureaucrat-turned-governor (dummy), local-officials-turned-governor (dummy), share of the votes and ratio of the old and time trend are exogenous. The GMM-type instrumental variables are the two-period lagged dependent variables and one-period lagged endogenous variables. The dependent variables, local bond outstanding, subsidies from central, tax revenues are converted to a real and per capita basis using the deflator of the gross regional product. ***, **, * represent that the estimated coefficients are statistically significantly different from zero at the significance level of 0.1, 0.05 and 0.01, respectively. Sample period is FY1998-2006. The figures in parentheses are standard errors.

Table 4. Effects of the MIC bureaucrats

	(a)	(b)	(c)	(d)	(e)
Dependent variable	Local bond outstanding	Net expenditure	Personnel expenses	Subsidy expenses	Construction works expenses
Lagged dependent		0.086 (0.07)	0.642 *** (0.10)	-0.082 (0.06)	0.215 ** (0.08)
Bond outstanding (<i>t</i> -1)	0.827 *** (0.03)	-0.185 *** (0.05)	0.004 (0.00)	0.021 * (0.01)	-0.228 *** (0.04)
Vice-gov. from central	-3.935 (5.66)	-7.932 (6.58)	-0.664 (0.58)	2.493 *** (0.88)	-9.557 ** (4.47)
Director from MIC	-9.526 ** (4.59)	-11.623 * (5.87)	1.064 (0.68)	3.218 *** (1.12)	-17.601 *** (4.54)
Director from others	-0.070 (6.80)	-17.000 ** (6.51)	0.364 (1.16)	3.352 (2.08)	-1.077 (7.55)
Last year of the term	-1.113 (4.11)	-1.946 (5.53)	-0.522 (0.55)	-0.803 (0.86)	0.072 (2.24)
Bureaucrat-turned	-4.054 (5.92)	2.483 (6.59)	0.564 (1.02)	2.098 (1.55)	-1.915 (4.14)
Tenure as governor	0.479 (1.16)	-0.155 (1.63)	0.229 (0.20)	0.692 * (0.35)	-0.366 (1.03)
Share of the votes	0.115 * (0.07)	-0.010 (0.07)	-0.011 (0.01)	-0.007 (0.02)	-0.037 (0.08)
Construction industry	2.276 * (1.28)	6.595 *** (1.65)	-0.337 (0.22)	-0.218 (0.42)	3.423 ** (1.30)
Subsidies from central	-0.073 (0.07)	0.568 *** (0.10)	0.050 *** (0.01)	0.058 *** (0.02)	0.270 *** (0.08)
Tax revenues	-0.596 *** (0.10)	0.677 *** (0.18)	0.059 ** (0.02)	0.284 *** (0.03)	0.373 *** (0.12)
Ratio of the old	0.836 (5.95)	10.515 ** (4.64)	-0.961 (0.80)	1.602 (1.67)	4.941 (4.75)
Job opening ratio	-24.962 *** (4.61)	-13.286 ** (5.02)	0.293 (0.60)	-4.251 *** (1.38)	-12.411 *** (3.61)
Time trends	4.219 (3.31)	-1.184 (3.44)	0.552 (0.45)	1.349 (1.23)	0.322 (3.27)
Arellano-Bond test					
AR(1) [p-value]	0.039	0.124	0.000	0.002	0.021
AR(2) [p-value]	0.707	0.423	0.192	0.266	0.197
# of IVs	59	59	59	56	59
# of obs	423	423	423	376	423
Hansen's J statistics	42.10	44.19	37.67	34.88	37.64

(Note) The estimation method is the one-step GMM estimation by Arellano-Bond. See note for Table 4.

Table 5. Determinants of invitation

	(a)	(b)	(c)
Dependent variable	VG + GA	VG	GA
Lagged dependent	0.244 (0.15)	0.605 (0.13)	*** 0.220 (0.15)
Bond outstanding (<i>t</i> -1)	-0.001 (0.00)	-0.001 (0.00)	0.000 (0.00)
Last year of the term	0.082 (0.08)	-0.060 (0.09)	0.166 (0.07) **
Bureaucrat-turned	0.064 (0.12)	-0.146 (0.11)	0.257 (0.13) *
Tenure as governor	-0.001 (0.01)	0.008 (0.01)	-0.010 (0.01)
Share of the votes	-0.003 (0.00)	-0.002 (0.00)	-0.001 (0.00)
Construction industry (<i>t</i> -1)	0.120 ** (0.06)	0.021 (0.04)	0.088 * (0.05)
Subsidies from central (<i>t</i> -1)	-0.004 * (0.00)	-0.002 (0.00)	-0.002 (0.00)
Tax revenues (<i>t</i> -1)	-0.006 (0.00)	-0.003 (0.00)	-0.003 (0.00)
Ratio of the old (<i>t</i> -1)	-0.059 (0.14)	-0.138 (0.12)	0.112 (0.14)
Job opening ratio (<i>t</i> -1)	-0.094 (0.12)	-0.062 (0.09)	-0.065 (0.12)
Time trends	0.075 (0.10)	0.125 (0.08)	-0.063 (0.09)
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Arellano-Bond test			
AR(1) [p-value]	0.016	0.001	0.017
AR(2) [p-value]	0.054	0.922	0.063
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# of IVs	36	36	36
# of obs	423	423	423
Hansen's J statistics	20.66	25.06	19.83

(Note) The estimation method is the one-step GMM estimation by Arellano-Bond. Bond outstanding and subsidies from the central government are predetermined, and other variables, except for the lagged dependent variable, are exogenous. The GMM-type instrumental variables include the two-period lagged endogenous variables. The local bond outstanding, subsidies from central, tax revenues are converted to a real and per capita basis using the deflator of the gross regional product. ***, **, * represent that the estimated coefficients are statistically significantly different from zero at the significance level of 0.1, 0.05 and 0.01, respectively. Sample period is FY1998-2006. The figures in parentheses are standard errors.