



Title	Bureaucrats's Policy Implementation and Their Influence in Japanese Policymaking Process
Author(s)	MACHINO, Kazuo
Citation	ECONOMIC JOURNAL OF HOKKAIDO UNIVERSITY, 27, 35-51
Issue Date	1998
Doc URL	http://hdl.handle.net/2115/30563
Type	bulletin (article)
File Information	27_P35-51.pdf



[Instructions for use](#)

Bureaucrats' Policy Implementation and Their Influence in Japanese Policymaking Process*

Kazuo MACHINO

This paper will examine how Japanese elite bureaucrats influence policymaking process controlled officially by politicians. It is proved that the higher the ministry's effort level, which corresponds to its evaluation of the policy, the lower is the minimum efficacy level required for the governing party to choose a given policy. Thus, the bureaucrats' influence in the implementation stage increases their overall influence on the Japanese policymaking process.

1. Introduction

This paper will examine how Japanese elite bureaucrats influence policymaking process controlled officially by politicians. Roughly speaking, we can divide the Japanese policymaking process into four steps: proposal making, legislation, implementation, and election (See Table 1.). In my previous paper (1997), policy proposals are made only by bureaucrats and politicians have veto power over the bureaucrats' proposals. The question, "Who influences our policymaking process more, bureaucrats or politicians?" has been one of the most popular questions by political scientists, journalists and many other people interested in Japanese politics.¹ I believe that both bureaucrats and politicians have power and that which one has more power depends on the policy area and the political or economic environment of the times. In this paper, to focus on the implementation stage and to simplify the model, the bureaucrats just implement the policy decided by the politicians. Although the ministry (bureaucrats) here is not an active player, it can influence the policymaking process. The Japanese ministries promote and protect their jurisdictional constituencies by means of regulations, subsidies, "administrative guidance," and so on. While these activities need to go through the proposal making and the legislative stage, the ministries are facilitated by the fact that they can interpret and apply the rules in their favor. This is especially true for "administrative guidance." Johnson (1982, page 265) defines it as follows,

* The main part of this paper is based on the fourth chapter of my Ph. D. dissertation. I thank the dissertation committee members for very helpful discussions. I also thank Takashi Yanagawa, Hideshi Ito, and the members of *Hokkaido University Kindai Keizaigaku Kenkyu-kai* for helpful comments. They are not to be blamed for any errors.

1) See Calder (1988) and Kato (1994) for more realistic views about the relationships between Japanese politicians and bureaucrats.

It refers to the authority of the government, contained in the laws establishing various ministries, to issue directives (*shiji*), requests (*yobo*), warnings (*keikoku*), suggestions (*kankoku*), and encouragements (*kansho*) to the enterprises or clients within a particular ministry's jurisdiction.

Although recent studies (e.g., Shindo, 1992 and Muramatsu, 1994) and the legis-

Table 1. Policymaking Process in Japan

Organization	Policymaking Step	Main Player	Other Players
Bureaucracy	idea generation	ministry section	interest groups, <i>zoku</i> members
	coordination inside the ministry	coordinating section	
	coordination between the ministries	secretariats of the ministries	interest groups, <i>zoku</i> members
	budget negotiation	MOF, ministry	<i>zoku</i> members
	draft bill	Cabinet Legislation Bureau	
	ministry decision	ministry tops	<i>zoku</i> members
Liberal Democratic Party (LDP)	coordination inside the PARC section	<i>zoku</i> members	interest groups
	coordination between the PARC sections	<i>zoku</i> leaders	interest groups
	party bill	PARC tops	<i>zoku</i> members
	party decision	Executive Council	LDP leaders
	strategy in Diet	DSC, LDP leaders	other parties
Cabinet	formal confirmation	permanent vice ministers	
	formal confirmation	parliament vice ministers	
	formal confirmation	Cabinet Council	
Diet	schedule for Diet	DSC, HOC	other parties
	schedule for committee	committee's directors	DSC, HOC, media, other parties
	discussion	committee	ditto.
	decision	plenary session	ditto.
	above 4 steps	Second House	ditto.
Bureaucracy	application	agency in charge	interest groups

zoku members: LDP Diet members who are interested in a particular area of public policy usually for political reasons, PARC: LDP Policy Affairs Research Council, DSC: LDP Diet Strategy Committee, HOC: House Operation Committee.

Source: based on Iwai (1992)

lation of the Administrative Procedure Act in 1993, a response to increasing criticism from inside and outside of Japan, suggest that "administrative guidance" is becoming less discretionary, it is still a useful tool for the ministries to influence the result of policies.

In this model first the governing party (i. e., politicians) chooses one policy proposal over the alternative one. Then, the ministry (i. e., bureaucrats) implements the chosen policy. After observing the governing party's decision and the result of the policy, voters vote for the governing party or the opposition party for the second term. The existence of equilibrium strategies of the governing party and the median voter is proved. This paper also shows that the higher the ministry's effort level, which corresponds to its evaluation of the policy, the lower is the minimum efficacy level required for the governing party to choose a given policy. In the model, the ministry's effort level as well as the governing party's policy choice affects voters' income. If the governing party chooses the policy that the ministry agrees with, the ministry chooses a high effort level. If the governing party chooses the policy that the ministry disagrees with, the ministry chooses a low effort level. The ministry's response is known to the governing party but is unknown to voters.

This paper, like my previous one, uses Harrington's (1993) modeling technique which allows voters to be uncertain as to which economic policy is better. It also allows that voters' policy preferences change over time by observing the result of the chosen policy and getting new information about the efficacy of the policy. Although there are many theoretical models of political process, most are the spatial theoretical models where voters' policy preferences are given.² Aoki's (1988) bargaining-game model is a non-spatial model for the Japanese political system. However, the focus of this paper, the relationships between the different types of players (i. e., bureaucrats, politicians and voters) within a jurisdiction of one ministry, is different from that of Aoki's model (i. e., bargaining among "sub-governments").

2. The Model

2.1. Framework

The governing party is the only player who makes strategic choices. Although the model in this paper includes voters, the ministry, and the opposition party, their decisions are non-strategic. The game is made up of the following stages:

1. The types of the ministry, the governing party, and the voters are chosen randomly (chosen by *nature*). The governing party is informed of all types.
2. The governing party chooses a proposal from the two element set $\{z, S\}$. The choice of the governing party and the consequent income level are observed

by the voters.

3. The voters choose between the governing party and the opposition party. However, beliefs of the voters about the opposition party are not affected by choices at earlier stages because these earlier decisions reveal no new information about the opposition party.

For each player, each of the two policies, z, S , is associated with a distinct income $Y_\iota(x)$, $x \in \{z, S\}$, $\iota \in \{\text{voters, political parties, the ministry}\}$. $Y_\iota(x)$ is a random variable: $Y_\iota(x) = Y^0 + C(\omega_\iota(x) + \nu_\iota(x) + \varepsilon)$ where $\varepsilon \sim N(0, \sigma_\varepsilon^2)$, Y^0 and C are positive constants, $\omega_\iota(x) \in [0, 1]$, is a constant to the player itself if the player is a political party or the ministry, and $\nu_\iota(x) \in [0, 1]$, is a constant to the ministry and the governing party. If the player is a voter, $\omega_\iota(x)$ is a random variable (even to the player herself) with a distinct mean, μ^x , and the same variance, σ^2 .² Each player's evaluation of $\omega_\iota(x)$ and $\nu_\iota(x)$ and the other players' expectations of them are discussed in the next section. We may, without loss of generality, use a normalization of income given by $y_\iota(x) = (Y_\iota(x) - Y^0)/C$ for $x \in \{z, S\}$.³

2.2. Actors

As noted above, the actors include the voters, the governing party, the opposition party, and the ministry. Each is described in detail in the next four subsections.

2.2.1. Voters

Voters care only about income and are risk neutral. Voters' expectations of $\omega(x)$, which are private information, are assumed to be normally distributed:

$$\omega(z) \sim N(\mu, \sigma^2) \text{ and } \omega(S) \sim N(1 - \mu, \sigma^2), \mu \in [0, 1].$$

The voters believe policy z to be more effective than policy S if $\mu > 1/2$.

A voter's type μ is randomly drawn from $[0, 1]$ chosen according to the differentiable cumulative distribution function $G(\cdot) : [0, 1] \rightarrow [0, 1]$. Thus, the governing party's prior expectation of the median voter's type is represented by $G(\cdot)$.

After voters observe which policy the governing party chose they infer the probability that it will choose the same policy again if it is reelected. The voters also reevaluate the efficacy of the policy the governing party chose after their income is realized. Then, they vote.

2) See Cox (1994) and Cox and Niou (1994) for models of the Japanese electoral system and Romer and Rosenthal (1978), Rosenthal (1990), Morris and Munger (forthcoming) for the agenda setter models.

3) Since which player is being discussed is clear, the subscript ι is omitted in the rest of the paper.

2.2.2. The Governing Party

The governing party cares about holding office and about the level of voters' income y and is risk neutral. For modeling purposes, the existence of an incentive other than holding office is important because it gives the governing party a reason to choose a policy in its second, i.e., its last, term. Let k denote the value attached to holding office. The utility to the governing party is $y+k$ with $k>0$.

A type- α governing party believes with certainty that

$$(\omega(z), \omega(S)) = (\alpha, 1-\alpha), \quad \alpha \in [0, 1].$$

The value α is private information. We assume that the governing party believes its policy assessment with certainty. It seems plausible that the governing party knows the ministry's expectation of the efficacy of any policy, and thus, his effort level. Let β be the ministry's effort where policy z is chosen, and $1-\beta$ be the effort when S is chosen.

The governing party believes policy z to be more effective than policy S if

$$\alpha + \nu(z) > 1 - \alpha + \nu(S). \quad (1)$$

Thus the governing party knows that $\nu(z) = \beta$ and $\nu(S) = 1 - \beta$, and (1) reduces to

$$\alpha + \beta > 1 - \alpha + 1 - \beta,$$

or

$$\alpha > 1 - \beta.$$

This inequality has the implication that the governing party may have to give up a policy which it prefers and adopt the least favorite policy. For example, if $\alpha > 1/2$ and $\alpha < 1 - \beta$ (Δabc in Figure 1), then S is more effective, despite z being the governing party's favorite policy. A similar argument holds if $\alpha < 1/2$ and $\alpha > 1 - \beta$ (Δcde in Figure 1). Clearly the ministry's effort level limits the governing party's policy choice.

The governing party's type, as the ministry's type, is determined by indepen-

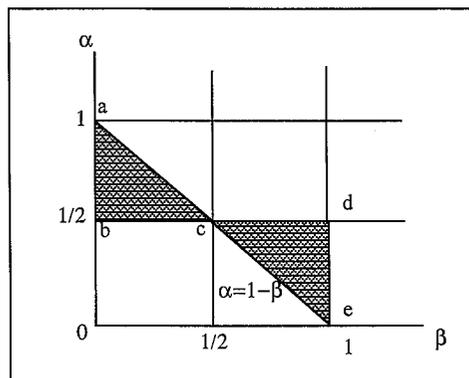


Figure 1. $\alpha \geq 1 - \beta$

dent and random draws from $[0, 1]$ chosen according to the continuous cumulative distribution function $F(\cdot) : [0, 1] \rightarrow [0, 1]$. Thus, voters' prior expectations of a governing party's type are also represented by $F(\cdot)$.

2.2.3. The Opposition Party

The opposition party makes no strategic choice. The opposition party's type is also determined by independent, random draws from $[0, 1]$ chosen according to the same continuous cumulative distribution function as the governing party, $F(\cdot) : [0, 1] \rightarrow [0, 1]$. Thus, voters' and the governing party's prior expectations of the opposition party's type are represented by $F(\cdot)$.

2.2.4. The Ministry

In this model, the ministry only implements the policy the governing party chooses. It makes no strategic choice. Like in the other models on Japanese bureaucrats, bureaucrats in the ministry are neither appointed nor fired by the governing party. It is reasonable to assume that the higher the ministry's expectation of the efficacy (from the view point of the ministry) of the policy, the harder he works.

A type- β ministry believes with certainty that

$$(\omega(z), \omega(S)) = (\beta, 1-\beta), \beta \in [0, 1].$$

The ministry believes policy z to be more effective than policy S if $\beta > 1/2$. As we mentioned before β coincides with his effort level in implementing the policy. That is

$$(\nu(z), \nu(S)) = (\beta, 1-\beta), \beta \in [0, 1].$$

The voters do not know the value of β ; they assume that β is $1/2$. The assumption that voters are unaware of the magnitude of the ministry's influence in the policymaking process is consistent with reality in Japan. On the contrary, the governing party knows the value of β .

As shown in my previous paper, there are two views on the relationship between the governing party and bureaucrats (i. e., the ministry). Both the revisionists and the pluralists seem to regard career concerns as an individual bureaucrat's main incentive. Both sides also seem to agree that the top officials and some former top officials of each ministry are practically in charge of important personnel matters. However, Aoki (1988) thinks that jurisdictional disputes among ministries limit each ministry's autonomy. Which of these two views is close to reality is an important question, but is beyond the scope of the present study.

3. The Game

In this section the specific choices of the governing party and the voters are

spelled out and their payoff functions are specified. Section 3.1 examines the governing party, and Section 3.2 deals with the voters.

3.1. The Governing Party's Choice

The governing party chooses a policy based on its effect on the party's re-election and on the result of the policy, i. e., income. If the policy the governing party thinks voters will like is the same policy it likes, there is no problem for the party to choose a policy. However, if the two players' policy preferences are different, the governing party must decide whether it is more desirable to choose the better policy (in terms of the income level) and lose the election or to choose the worse policy and win the election. In the former case the governing party must take into account the possibility that the opposition party will also choose the governing party's preferred policy in the second period. In addition to these considerations, the governing party must think about the ministry's influence on the policy result, i. e., β . If the ministry's evaluation of a policy is not high, its effort level in implementing the policy will not be higher either.

If reelected, the governing party will not necessarily choose the policy it chose initially. The party will choose the policy which it thinks is better, i. e., the policy which will bring higher income, since it has no more elections to worry about.

Keeping all these factors in mind, the governing party calculates its expected utility when it chooses policy $x \in \{z, S\}$. Thus, the governing party's expected utility when its type is α and it chooses policy x is

$$E[U|\alpha, z] = (\alpha + \beta + k) + \delta \{ \lambda(\alpha, z) [\max\{\alpha + \beta, 2 - \alpha - \beta\} + k] \\ + [1 - \lambda(\alpha, z)] [f(\alpha + \beta) + (1-f)(2 - \alpha - \beta)] \}, \quad (2)$$

and

$$E[U|\alpha, S] = [2 - \alpha - \beta + k] + \delta \{ \lambda(\alpha, S) [\max\{\alpha + \beta, 2 - \alpha - \beta\} + k] \\ + [1 - \lambda(\alpha, S)] [f(\alpha + \beta) + (1-f)(2 - \alpha - \beta)] \}, \quad (3)$$

where

$\lambda(\alpha, x)$ is the probability that a type- α governing party assigns to being reelected when it chooses policy $x \in \{z, S\}$;

$1 - \lambda(\alpha, x)$ is the probability of the opposition party's being elected when the governing party chooses policy x ;

$\delta \in [0, 1]$ is the discount factor;

f is the probability that the opposition party chooses policy z ;

$1 - f$ is the probability that the opposition party chooses policy S .

Let $\Psi(\alpha) \equiv E[U|\alpha, z] - E[U|\alpha, S]$.

$$\Psi(\alpha) = 2(\alpha + \beta - 1) + \delta \Delta(\alpha) \{ [\max\{\alpha + \beta, 2 - \alpha - \beta\} + k] - [f(\alpha + \beta) + (1-f)(2 - \alpha - \beta)] \},$$

where $\Delta(\alpha) \equiv \lambda(\alpha, z) - \lambda(\alpha, S)$. Thus, the governing party will choose policy z if and only if $\Psi(\alpha) \geq 0$.

Assume there exists α^* such that $\Psi(\alpha^*) = 0$ and $\alpha^* \in (0, 1)$. Since, as we will see later, $\lambda(\alpha, z)$ is a monotone increasing function of α and $\lambda(\alpha, S)$ is a monotone decreasing function of α , $\Delta(\alpha)$ and, thus, $\Psi(\alpha)$ is a monotone increasing function of α . Therefore, we can divide α into the two sets:

$$\alpha_z = \{\alpha \mid \alpha \geq \alpha^*\}, \text{ and } \alpha_S = \{\alpha \mid \alpha < \alpha^*\}.$$

Type- α_x governing party will choose policy x .

3.2. Voters' Choice

The voters must determine their estimates of the effectiveness of the various policies. While they begin with prior beliefs, before the election they observe the policy chosen by the governing party. Although voters know that the ministry is an important actor in the policymaking process, they are unaware of how much influence the ministry has in the process. The voters also observe income during the term of the governing party. Their posterior beliefs are taken up in Subsection A. Their new information permits them to revise their beliefs about the future policy that the governing party would select if it were reelected. This is examined in Subsection B. Finally, Subsection C derives the governing party's inference on the voters' decision from Subsections A and B.

A. Voters' Policy Preference

After observing the chosen policy and their realized income, a type- μ voter reevaluates the efficacy of policy $x \in \{z, S\}$, i. e., $\omega(x)$. Since the voter believes $\nu(x) = 1/2$, the Bayesian estimator of the reevaluated $\omega(x)$ after the policy is implemented is specified as follows under the normality assumptions:

$$E[\omega(z) \mid y(z), \mu] = \rho[y(z) - 1/2] + (1 - \rho)\mu \quad (4)$$

$$E[\omega(S) \mid y, \mu] = \rho[y(S) - 1/2] + (1 - \rho)(1 - \mu) \quad (5)$$

where $\rho \equiv \sigma^2 / (\sigma^2 + \sigma_\epsilon^2)$.⁴

When the chosen policy in the first period is policy z , type- μ voters' new expectation of policy z is $\rho[y(z) - 1/2] + (1 - \rho)\mu$. If the voters' new expectation of policy z is greater than that of policy S , type- μ voters want policy z to be implemented again in the second period. That is

$$\rho[y(z) - 1/2] + (1 - \rho)\mu \geq 1 - \mu. \quad (6)$$

4) About Bayesian estimators, see, for example, Freund and Walpole (1987) Section 10.8.

Type- μ voters' expectation of $\omega(S)$ is still $1-\mu$ since policy S was not implemented in the first period. They have no new information about the efficacy of the policy S . Equation (6) can also be expressed as

$$y(z) \geq \underline{y}_z(\mu) \equiv \mu + (2/\rho)(1/2 - \mu) + 1/2. \quad (6')$$

Thus, if μ satisfies (6'), type- μ voters want policy z to be implemented again in the second period. Since $\underline{y}_z(\mu)$ is a monotone decreasing function of μ and since y can be any real number, we can divide μ into two sets based on whether μ satisfies (6') or not.

Similarly, when x is S , type- μ voters' new expectation of policy S is $\rho[y(S) - 1/2] + (1-\rho)(1-\mu)$. Type- μ voters want policy S to be implemented again in the second period if

$$\rho[y(S) - 1/2] + (1-\rho)(1-\mu) \geq \mu, \quad (7)$$

or

$$y(S) \geq \underline{y}_s(\mu) \equiv (1-\mu) - (2/\rho)(1/2 - \mu) + 1/2. \quad (7')$$

Since $\underline{y}_s(\mu)$ is a monotone increasing function of μ and y can be any real number, we can also divide μ into two sets. Integrating the two cases, we have two redefined "types" of voters: voters who want the same policy again and those who do not. However, more information is necessary for voters to decide which candidates, i. e., the governing party or the opposition party, they will vote for.

B. Voters' Expectation about The Governing Party's Policy Choice

If voters observe that the governing party implemented policy z in its first term (i. e., $x=z$), they will infer that the governing party's type lies in $(\alpha^*, 1]$. The voter's subjective probability that the governing party's type lies in $(\alpha^*, 1]$ is $1-F(\alpha^*)$ since they know the cumulative distribution function of α is $F(\cdot)$. If reelected, voters will infer, the governing party will implement policy z if and only if $\alpha \geq 1/2$. Since $\alpha^* \geq 1/2$ and $\alpha^* < 1/2$ are both possible, voters' subjective probability that the governing party will choose policy z if reelected (when $x=z$) is

$$\eta(z|z) = [1 - F(\max\{1/2, \alpha^*\})] / [1 - F(\alpha^*)]. \quad (8)$$

Their subjective probability that the governing party will choose policy S if reelected (when $x=z$) is $\eta(S|z) = 1 - \eta(z|z)$.

Since voters have no information about the opposition party's policy preference, they assign probability $f = 1 - F(1/2)$, to the opposition party implementing policy z .

If $1/2 \geq \alpha^*$,

$$\begin{aligned}\eta(z|z) - f &= [1 - F(1/2)]/[1 - F(\alpha^*)] - [1 - F(1/2)] \\ &= [1 - F(1/2)][F(\alpha^*)]/[1 - F(\alpha^*)] \\ &\geq 0.\end{aligned}$$

If $1/2 < \alpha^*$,

$$\begin{aligned}\eta(z|z) - f &= [1 - F(\alpha^*)]/[1 - F(\alpha^*)] - [1 - F(1/2)] \\ &= F(1/2) \\ &\geq 0.\end{aligned}$$

Since $\eta(S|z) = 1 - \eta(z|z)$, $\eta(S|z) - (1 - f) = f - \eta(z|z) \leq 0$.

Thus, when the governing party chooses policy z in the first period, voters think that the governing party is more likely than the opposition party to choose policy z in the second period and that the governing party is less likely than the opposition party to choose policy S in the second period.

When $x = z$, voters will vote for the governing party if and only if

$$\begin{aligned}\eta(z|z)\{\rho[y(z) - 1/2] + (1 - \rho)\mu\} + [1 - \eta(z|z)][1 - \mu] \\ \geq f\{\rho[y(z) - 1/2] + (1 - \rho)\mu\} + (1 - f)(1 - \mu),\end{aligned}$$

or,

$$[\eta(z|z) - f]\{\rho[y(z) - 1/2] + (1 - \rho)\mu\} \geq [\eta(z|z) - f](1 - \mu).$$

Since $\eta(z|z) - f \geq 0$, voters will vote for the governing party if and only if

$$\rho[y(z) - 1/2] + (1 - \rho)\mu \geq 1 - \mu.$$

This is exactly the inequality (6). Therefore, if voters want policy z again (i. e., $y(z) \geq \underline{y}_z$), they will vote for the governing party. Since voters have only two choices, i. e., the governing party and the opposition party, if they do not want policy z (i. e., $y(z) < \underline{y}_z$) they will vote for the opposition party.

When $x = S$,

$$\eta(S|S) = F(\min\{1/2, \alpha^*\})/F(\alpha^*). \quad (9)$$

If $1/2 \geq \alpha^*$,

$$\begin{aligned}\eta(S|S) - (1 - f) &= F(\alpha^*)/F(\alpha^*) - F(1/2) \\ &= 1 - F(1/2) \\ &\geq 0.\end{aligned}$$

If $1/2 < \alpha^*$,

$$\begin{aligned}\eta(S|S) - (1 - f) &= F(1/2)/F(\alpha^*) - F(1/2) \\ &= F(1/2)[1 - F(\alpha^*)]/F(\alpha^*) \\ &\geq 0.\end{aligned}$$

$$\eta(z|S) - f = 1 - f - \eta(S|S) < 0.$$

Thus, when the governing party chooses policy S in the first period, voters think that in the second period the governing party is more likely to choose policy S and less likely to choose policy z than the opposition party.

When policy S is chosen in the first period, voters will vote for the governing

party if and only if

$$\begin{aligned} & \eta(S|S)\{\rho[y(S)-1/2]+(1-\rho)(1-\mu)\}+[1-\eta(S|S)]\mu \\ & \geq (1-f)\{\rho[y(S)-1/2]+(1-\rho)(1-\mu)\}+f\mu, \end{aligned}$$

or,

$$\begin{aligned} & [\eta(S|S)-(1-f)]\{\rho[y(S)-1/2]+(1-\rho)(1-\mu)\} \\ & \geq [\eta(S|S)-(1-f)](\mu-\beta). \end{aligned}$$

Since $\eta(S|S)-(1-f) \geq 0$, voters will vote for the governing party if and only if

$$\rho[y(S)-1/2]+(1-\rho)(1-\mu) \geq \mu. \quad (\text{inequality (7)})$$

Therefore, if voters want policy S again (i. e., $y(S) \geq \underline{y}_s$), they will vote for the governing party. Otherwise, (i. e., if $y(S) < \underline{y}_s$), they will vote for the opposition party.

Combining the analyses about voters' posterior expectations of the policies and about voters' expectations of the governing party's future policy intention, we can rename the two voter "types", i. e., voters who will vote for the governing party and voters who will vote for the opposition party:

$$\mu_g = \{\mu | y(x) \geq \underline{y}_x\} \text{ and } \mu_o = \{\mu | y(x) < \underline{y}_x\}.$$

In this game, since voters can observe which policy the governing party chooses, they know the governing party's redefined "type" α_x and, thus, its future policy intention. On the other hand, since the governing party must choose a policy before voters vote, it does not know their "type".

C. The Governing Party's Inference about Voters' Decisions

If the median voter prefers the governing party and $x=z$ then, since $\underline{y}_z(\mu)$ is decreasing in μ , all those voters whose type is greater than or equal to the median voter's type will also vote for the governing party. If the median voter prefers the governing party and $x=S$, since $\underline{y}_s(\mu)$ is increasing in μ , all those voters whose type is smaller than or equal to the median voter's type will also vote for the governing party. Thus, in terms of the election, only the median voter matters.

As shown earlier, voters infer that if the governing party chooses policy z in its first term, then it is more likely than the opposition party to implement policy z in the second period. Thus, when $x=z$, reelection occurs if and only if the type- μ median voter's posterior expectation of policy z is greater than that of policy S , i. e., the voter prefers policy z to policy S . That is

$$y(z) \geq \underline{y}_z(\mu) \equiv \mu + (2/\rho)(1/2 - \mu) + 1/2. \quad (6')$$

Since a type- α governing party knows that $y(z) = \omega(z) + \varepsilon + \beta$

$$\varepsilon \geq (2/\rho)(1/2 - \mu) + \mu + 1/2 - \omega(z) - \beta.$$

Since the party believes $\omega(z) = \alpha$,

$$\varepsilon \geq (2/\rho)(1/2 - \mu) + \mu + 1/2 - \alpha - \beta.$$

Let $H[\cdot]$ denote the cumulative distribution function of ε , then

$$\lambda(\alpha, z) = \int_0^1 \{1 - H([2/\rho][1/2 - \mu] + \mu + 1/2 - \alpha - \beta)\} G'(\mu) d\mu. \quad (10)$$

$\lambda(\alpha, z)$ is increasing in α and continuous.

Likewise, when $x = S$, reelection occurs if and only if

$$y(S) \geq \underline{y}_s(\mu) \equiv (1 - \mu) - (2/\rho)(1/2 - \mu) + 1/2. \quad (7')$$

Since a type- α governing party knows that $y(S) = \omega(S) + \varepsilon + (1 - \beta)$

$$\varepsilon \geq - (2/\rho)(1/2 - \mu) + (1 - \mu) + 1/2 - \omega(S) - (1 - \beta).$$

Since the party believes $\omega(S) = (1 - \alpha)$

$$\varepsilon \geq - (2/\rho)(1/2 - \mu) - \mu + 1/2 + \alpha - (1 - \beta).$$

Then,

$$\lambda(\alpha, S) = \int_0^1 \{1 - H(-[2/\rho][1/2 - \mu] - \mu + 1/2 + \alpha - [1 - \beta])\} G'(\mu) d\mu. \quad (11)$$

$\lambda(\alpha, S)$ is decreasing in α and continuous.

4. Results

The equilibrium strategy of the governing party and the equilibrium behavior of the voters are described in Section 4.1. The existence of α^* , the minimum efficacy level of policy z that makes the governing party choose it, is proved in Section 4.2. Section 4.3 analyzes how the ministry's efforts influence the governing party's policy choice.

4.1. Equilibrium Strategies

The governing party's equilibrium strategy for the policy choice takes the following form:

$$x^*(\alpha, \beta) = \begin{cases} S & \text{if } \alpha \in [0, \alpha^*) \\ z & \text{if } \alpha \in [\alpha^*, 1], \end{cases} \quad \alpha^* \in (0, 1). \quad (12)$$

One can regard α^* as the minimum efficacy level of policy z that induces the governing party to choose it. Here are two examples that explain why α^* is not necessarily equal to $1/2$. First, despite the governing party's expectation of high income, i. e., $\alpha > 1/2$, voters may believe that the realized income from policy z will be so low that they prefer policy S, i. e., $\mu < 1/2$. Thus, the governing party may choose policy S even when $\alpha > 1/2$. If that is the case, $\alpha^* > \alpha > 1/2 > \mu$.

Second, the ministry may shirk. If the governing party chooses policy z when $\beta \leq 1/2$, the governing party's expected realized income level, $\alpha + \beta$, must be high enough for the governing party to believe that $\alpha > 1 - \beta$. Then, α^* must

be greater than or equal to $1-\beta$, and since $0 < \beta \leq 1/2$, α^* is greater than $1/2$. Similarly, α^* can be less than $1/2$.

A type- α voter's optimal voting rule is

$$t^*(\mu, x, y) = \begin{cases} \text{governing party} & \text{if } y(x) \geq y_x(\mu) \\ \text{opposition party} & \text{otherwise.} \end{cases} \quad (13)$$

A voter votes at the beginning of the second period. She must think about which policy she likes better based on which policy the governing party chose, the result of the policy, and her expectation of the efficacy of the other policy. She must also think about which policy the governing party and the opposition party will choose if they are elected for the second period.

A type- μ voter votes for the governing party if and only if she desires policy x to be implemented again. As shown earlier, she infers that the governing party is more likely to choose the policy chosen in the first period.

The governing party's past policy is instrumental to the voters because it provides information as to the governing party's future policy intention, while past performance provides information as to the effectiveness of the governing party's policy. As a result, policy choice and performance jointly determine voting behavior.

4.2. The Existence of α^*

Theorem I shows that (12) and (13) form an equilibrium when the governing party is sufficiently policy-motivated; that is the marginal utility of income, 1 , is large relative to the incremental value of holding office, k .

The governing party chooses policy z if its expectation of the effectiveness of the policy, α , is greater than the cutoff rate for its policy choice, $\alpha^* \in (0, 1)$, the minimum efficacy level of policy z .

Theorem I: There exist $\alpha^* \in (0, 1)$ such that (12) and (13) is a perfect Bayesian equilibrium if and only if $1/k$ is sufficiently large. If α^* exists, then it is unique.

PROOF

Remember $\Psi(\alpha) \equiv E[U|\alpha, z] - E[U|\alpha, S]$ where $E[U|\alpha, x]$ is the governing party's expected utility when its type is α and it chooses policy x .

$$\Psi(\alpha) = 2(\alpha + \beta - 1) + \delta \Delta(\alpha) \{ [\max\{\alpha + \beta, 2 - \alpha - \beta\} + k] - [f(\alpha + \beta) + (1-f)(2 - \alpha - \beta)] \},$$

where $\Delta(\alpha) \equiv \lambda(\alpha, z) - \lambda(\alpha, S)$. Thus, the governing party will choose policy z if and only if $\Psi(\alpha) \geq 0$.

The governing party strategy (12) is a best response if and only if $\Psi(\alpha) \leq 0 \forall \alpha \in [0, \alpha^*]$ and $\Psi(\alpha) > 0 \forall \alpha \in (\alpha^*, 1]$. Since $\Delta(\alpha)$ is increasing in α and con-

tinuous, $\Psi(\alpha)$ is increasing in α and continuous. The strategy (12) is then a best response if and only if $\Psi(\alpha^*)=0$. There exists $\alpha^*\in(0, 1)$ if and only if $\Psi(0) < 0 < \Psi(1)$.

$$\begin{aligned}\Psi(0) &= 2(\beta-1) + \delta\Delta(0)[2-\beta+k-f\beta-(1-f)(2-\beta)] \\ &= 2(\beta-1) + \delta\Delta(0)[k-2f\beta+2f] \\ &= -2(1-\beta) + \delta\Delta(0)[k+2f(1-\beta)] \\ &= -2(1-\beta)[1-\delta\Delta(0)f] + \delta\Delta(0)k.\end{aligned}$$

Thus, $\Psi(0) < 0$, if $2(1-\beta)[1-\delta\Delta(0)f] > \delta\Delta(0)k$, or $1/k > \delta\Delta(0)/\{2(1-\beta)[1-\delta\Delta(0)f]\}$.

Note that $1-\delta\Delta(0)f > 0$, since $\delta, f \in (0, 1)$ and $\Delta(\alpha) \in [-1, 1]$.

$$\begin{aligned}\Psi(1) &= 2\beta + \delta\Delta(1)[1+\beta+k-f(1+\beta) + (1-f)(1-\beta)] \\ &= 2\beta + \delta\Delta(1)[(1-f)(1+\beta) + k + (1-f)(1-\beta)] \\ &= 2\beta + \delta\Delta(1)[2(1-f) + k] \\ &= 2[\beta + \delta\Delta(1)(1-f)] + \delta\Delta(1)k.\end{aligned}$$

Thus, $\Psi(1) > 0$, if $2[\beta + \delta\Delta(1)(1-f)] > -\delta\Delta(1)k$, or $1/k > -\delta\Delta(1)/2[\beta + \delta\Delta(1)(1-f)]$.

Hence, $\Psi(0) < 0 < \Psi(1)$ if

$$1/k > \kappa \equiv \max\{\delta\Delta(0)/2(1-\beta)[1-\delta\Delta(0)f], -\delta\Delta(1)/2[\beta + \delta\Delta(1)(1-f)]\}. \quad (14)$$

Q. E. D.

Suppose $\Delta(1-\beta) > 0$. There is no trade-off when the policy that the governing party believes to be more effective is also the more popular one, i. e., $x^*(\alpha) = z$ for all $\alpha \in (1-\beta, 1]$. When α is sufficiently small and the income differential is sufficiently great, the governing party prefers policy S despite its anticipated unpopularity. This occurs for $\alpha < \alpha^*$. When $\alpha \in [\alpha^*, 1-\beta)$, strategic manipulation of policy results in implementing the more popular policy even though it is expected to generate lower income. Hence, the popularity of the policy is a noisy signal of the governing party's future policy intentions. From the voters' view points, however, this can be interpreted that they can influence the governing party's policy choice.

4.3. Comparative Statics (The Ministry's Influence)

Since the governing party chooses policy z when $\alpha > \alpha^*$, α^* can be interpreted as the minimum efficacy level for policy z to be chosen. Thus, if $d\alpha^*/d\beta < 0$, the minimum efficacy level of policy z for the governing party will decrease if the ministry's expectation of the efficacy of that policy increases. In other words, the governing party becomes more likely to choose policy z if the ministry likes the policy better. Then, β represents the ministry's influence on the governing party's policy choice.

We can show that $d\alpha^*/d\beta < 0$.

Note that

$$\begin{aligned}\Psi(\alpha^*) &= 2(\alpha^* + \beta - 1) + \delta\Delta(\alpha^*)\{\max\{\alpha^* + \beta, 2 - \alpha^* - \beta\} + k\} \\ &\quad - [f(\alpha^* + \beta) + (1-f)(2 - \alpha^* - \beta)] \\ &\equiv 0,\end{aligned}$$

Thus, when $\alpha^* > 1 - \beta$ (i. e., $\alpha^* + \beta > 2 - \alpha^* - \beta$),

$$\begin{aligned}&\{2 + \delta\Delta'(\alpha^*)[\alpha^* + \beta + k - f(\alpha^* + \beta) - (1-f)(2 - \alpha^* - \beta)] \\ &\quad + \delta\Delta(\alpha^*)[1-f + (1-f)]\}d\alpha^* \\ &\quad + \{2 + \delta\Delta(\alpha^*)[1-f + (1-f)]\}d\beta \\ &= \{2 + \delta\Delta'(\alpha^*)[k + (1-f)(\alpha^* + \beta - 2 + \alpha^* + \beta)] + 2\delta\Delta(\alpha^*)(1-f)\}d\alpha^* \\ &\quad + [2 + 2\delta\Delta(\alpha^*)(1-f)]d\beta \\ &= \{2 + \delta\Delta'(\alpha^*)[k - 2(1-f)(1 - \alpha^* - \beta)] + 2\delta\Delta(\alpha^*)(1-f)\}d\alpha^* \\ &\quad + [2 + 2\delta\Delta(\alpha^*)(1-f)]d\beta \\ &= 0.\end{aligned}$$

Hence,

$$\begin{aligned}d\alpha^*/d\beta &= -[1 + \delta\Delta(\alpha^*)(1-f)]/[1 + \delta\Delta(\alpha^*)(1-f) \\ &\quad + \delta\Delta'(\alpha^*)[k/2 - (1-f)(1 - \alpha^* - \beta)]].\end{aligned}$$

Since $\delta, |\Delta(\alpha^*)|, (1-f) \in [0, 1]$, then $1 + \delta\Delta(\alpha^*)(1-f) \geq 0$.

Since $\Delta'(\alpha^*) > 0$ and $\alpha^* > 1 - \beta$, then $\delta\Delta'(\alpha^*)[k/2 - (1-f)(1 - \alpha^* - \beta)] > 0$, and thus, $d\alpha^*/d\beta < 0$.

When $\alpha^* \leq 1 - \beta$ (i. e., $\alpha^* + \beta \leq 2 - \alpha^* - \beta$),

$$\begin{aligned}&\{2 + \delta\Delta'(\alpha^*)[2 - \alpha^* - \beta + k - f(\alpha^* + \beta) - (1-f)(2 - \alpha^* - \beta)] \\ &\quad + \delta\Delta(\alpha^*)[-1-f - (1-f)]\}d\alpha^* \\ &\quad + \{2 + \delta\Delta(\alpha^*)[-1-f - (1-f)]\}d\beta \\ &= \{2 + \delta\Delta'(\alpha^*)[k + f(2 - \alpha^* - \beta) - f(\alpha^* + \beta)] + \delta\Delta(\alpha^*)[-2]\}d\alpha^* \\ &\quad + \{2 + \delta\Delta(\alpha^*)[-2]\}d\beta \\ &= \{2 + \delta\Delta'(\alpha^*)[k + 2f(1 - \alpha^* - \beta)] - 2\delta\Delta(\alpha^*)\}d\alpha^* + [2 - 2\delta\Delta(\alpha^*)]d\beta \\ &= 0.\end{aligned}$$

Thus,

$$d\alpha^*/d\beta = -[1 - \delta\Delta(\alpha^*)]/[1 - \delta\Delta(\alpha^*) + \delta\Delta'(\alpha^*)[k/2 + f(1 - \alpha^* - \beta)]]$$

Since $\delta, |\Delta(\alpha^*)| \in [0, 1]$, then $1 - \delta\Delta(\alpha^*) \geq 0$.

Since $\Delta'(\alpha^*) > 0$ and $\alpha^* \leq 1 - \beta$, then $\delta\Delta'(\alpha^*)[k/2 + f(1 - \alpha^* - \beta)] > 0$, and thus, $d\alpha^*/d\beta < 0$. Therefore, $d\alpha^*/d\beta < 0$.

5. Concluding Remarks

In this paper the existence of an equilibrium set of strategies of the governing party and the median voter is proved for a two period game where the governing party chooses a policy in the first period and the median voter votes in the second period. The governing party chooses a policy considering its own utility in all possible cases, the popularity of the policy choices among voters, and the

ministry's influence on the policy's implementation. The median voter votes, considering the first-period governing party's policy choice, the income resulting from that policy, the expected efficacy of the other policy, and the two candidates' policy choices in the second period. It is also proved that the higher the ministry's expectation of the policy, i. e., its effort level, the lower the minimum efficacy level of the policy that makes the governing party choose it.

This paper demonstrates that the ministry can influence the policymaking process by simply controlling the implementation stage alone. Thus, even the pluralist view according to which the bureaucrats are much less influential in the Japanese policymaking process than previously thought may be able to explain Japanese phenomena like "administrative guidance." However, the direction of the bureaucrats' influence in this model is the same as that of the previous models (i. e., the more they like the policy, the more it is likely that the policy is chosen), and it is difficult to empirically separate the bureaucrats' influence in the proposal-making stage from that in the implementation stage.

Associate Professor of Economics, Hokkaido Univ.

References

1. Aoki, Masahiko. (1988), *Information, Incentives, and bargaining in the Japanese economy*, Chapter 7 "Bureaupluralism," Cambridge, Eng.: Cambridge University Press.
2. Calder, Kent E. (1988), *Crisis and Compensation: Public Policy and Political Stability in Japan*, Princeton, N. J.: Princeton University Press.
3. Cox, Gary W. (1994), "Strategic Voting Equilibria Under The Single Nontransferable Vote," *American Political Science Review*, 88(3), pp.608-21.
4. Cox, Gary W. and Niou, Emerson M. S. (1994), "Seat Bonuses under the Single Nontransferable Vote System: Evidence from Japan and Taiwan," *Comparative Politics*, 26, (January), pp.221-36.
5. Freund, John E. and Walpole, Ronald E. (1987), *Mathematical Statistics, Fourth Edition*, Englewood Clifff, N. J.: Prentice-Hall, Inc.
6. Harrington Jr., Joseph. (1993), "Economic Policy, Economic Performance, and Elections," *American Economic Review*, (March), pp.27-42.
7. Iwai, Tomoaki. (1992), "Gendai Nihon ni okeru Seisaku Kateiron Moderu (Policymaking Process in Contemporary Japan)," *Reviathan (Leviathan)*, (Summer) pp.170-192.
8. Johnson, Chalmers. (1982), *MITI and The Japanese Miracle: The Growth of Industrial Policy, 1925-1975*, Stanford, Calif.: Stanford University Press.
9. Kato, Junko. (1994) *The Problem of Bureaucratic Rationality*, Princeton University Press.
10. Machino, Kazuo. (1997), "Japanese Policymaking Process with Bureaucrats -A Game Theoretic Approach-," *Economic Journal of Hokkaido University*, Vol.26, pp.89-113.
11. Morris, Irwin and Munger, Michael C. "First branch, or root? the Congress, the President, and the Federal Reserve," *Public Choice*, forthcoming.
12. Muramatsu, Michio. (1994), *Nihon no Gyousei-Katsudou-gata Kanryousei no Henbou-* (Japan's Administration-The Changes in The Active Bureaucracy-), Tokyo, Japan: Chuo Koron Sha.
13. Romer, Thomas and Rosenthal, Howard. (1978), "Political Resource Allocation, Controlled Agendas, and The Status Quo," *Public Choice*, 33, pp.27-43.
14. Rosenthal, Howard. (1990), "The Setter Model," Enelow, James M. and Hinich, Melvin J. ed. *Advances in The Spatial Theory of Voting*, Chapter 9, Cambridge, Eng.: Cambridge

University Press.

15. Shindo, Muneyuki. (1992), *Gyousei Shidou* (Administrative Guidance), Tokyo, Japan : Iwanami Shoten.