Chapter 14
Delegation of Policy Tasks from Politician to the Bureaucrat

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14.1 Introduction

Originally, the agenda setting is the task in legislature. However, we often see that the politician and the bureaucrat contend with this task cooperatively although the politician has accountability in policy implementation as Maskin and Tirole (2004) examined. This implies that the politician delegates a part of his tasks to the bureaucrat. Why does the politician delegate his tasks? Does the bureaucrat who is delegated the politician's tasks make an effort sufficiently for the policy implementation?

To analyze this problem, we must clarify the role of the bureaucrat's tasks and the motivation of effort. We can consider that the politician's motivation of effort for the policy is to win the next electoral competition by leaving good policy outcome. The agenda setting, the tasks which the politician must do, needs much information of the citizens' preferences to the public service.

As for such information, the bureaucrat can collect easily because his administrative routine is the window of public service for the citizens. Therefore, if the politician wants to make a policy which is agreeable to the citizens' preferences, it is essential for the politician to use the information which the bureaucrat obtained from the citizens in his routine. This fact causes that the politician consigns his tasks to the bureaucrat.

Now, what are the bureaucrat's incentives to effort? Does the bureaucrat take on the politician's tasks? In Niskanen (1971), he considered the bureaucrats' object is their organization make larger and they obtain more budget. The bureaucrat is often argued in the framework of career concern. The career concern means that

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the bureaucrat is interested in his future career path (including the post after his retirement) and profit. To obtain these career and profit, the bureaucrat must know his ability and appeal it to the others.

If the bureaucrat could lead the delegated tasks from the politician to success, the others recognize that this bureaucrat's ability is likely high. Therefore, to lead the delegated tasks' success is appeal of his ability to the others and incentives to effort.

These are the differences of incentives to effort between the politician and the bureaucrat. So, what is the difference of employment between the politician and the bureaucrat? The politician can be in office only when he wins the election. If he fails the policy implementation in his term, he will lose his office in the next election. Needless to say, the politician is not ensured tenure. However, as for the bureaucrat, although he must pass the examination to be recruited, once he passes this examination, he is ensured tenure. Therefore, as long as the bureaucrat does not perpetrate serious failure, he will not be fired. The bureaucrat is ensured stable environment of employment better than the politician.

How do these differences affect the policy outcome and the interaction between the politician and the bureaucrat?

In recent research of new political economy, which is represented by Persson and Tabellini (2000), we can see the development of theoretical analysis about the behavior of the politician and the bureaucrat. Especially, as for the problem whether the voter reelects the incumbent politician by his performance in term or not, Carillo and Mariotti (2001), Gersbach (2004), Besley and Smart (2007), Borgne and Lockwood (2006), and Alesina and Tabellini (2008) analyzed.

Carillo and Mariotti (2001) examined influence between the election and the political turnover. Gersbach (2004) analyzed incentive contract to motivate the politician. Besley and Smart (2007) analyzed how the fiscal constraint affects voters' reelection strategy. In Borgne and Lockwood (2006), they examined what adoption system is desirable to make the politician adequate effort. Moreover, as for the behavior of the politician and the bureaucrat, we mention Alesina and Tabellini (2008). In their paper, they studied whether the politician or the bureaucrat should implement the policy tasks and, moreover, how the bribe and the lobbying activity affect the politician and the bureaucrat.

Not only in economics but also in the field of political science, there exist many research of the interaction between the politician and the bureaucrat. We can mention Epstein and O'Halloran (1999) as typical analysis. They describe the bureaucrat as an agent who can overcome the uncertainty of outcome of policy implementation better than the politician.

They focused on the degree of the delegation of authority from the politician to the bureaucrat. If the politician delivers too much authority to the bureaucrat, the politician's utility is declined because the bureaucrat implements the policy which is based on his ideology. However, if the politician does not deliver too much authority to the bureaucrat, the politician cannot obtain the policy outcome which he had expected because the politician cannot overcome such an uncertainty as well as the bureaucrat does, and he will face the risk of losing in the next electoral competition.

In the field of economics, Bennedsen and Feldmann (2006) analyze the interaction between the politician, the bureaucrat, and the special interest group by using the method of analysis of Epstein and O'Halloran (1999). Swank and Visser (2002) analyzed comparison between delegation and voting in decision making.

On such related works and motivation of research, we examine why and when the politician delegates his tasks to the bureaucrat and whether such a delegation is desirable for the citizens or not. Moreover, when such a delegation is desirable for the citizens, we discuss what incentives we should assign to the bureaucrat. The bureaucrat makes an effort to lead public works to success when he is delegated the politician's tasks. Consequently, depending on success or failure of public works, the reputation (about ability) of the bureaucrat is formed by all the players. This reputation affects the bureaucrat's future career, wage, and the post after his retirement. So, the bureaucrat is interested in the appeal of his ability to the others.

In such a framework of career concern, as for which the bureaucrat or politician makes more effort, we compare the reelection rent which is the politician's incentive to effort with the scheme of future profit which is the bureaucrat's incentive to effort.

As a result, when the citizens' anticipation value of the bureaucrat's effort rises, the actual bureaucrat's effort rises, too. These mechanism is introduced in Rasmusen (1996). In rational expectation equilibriums where the citizens' anticipation value coincides to the actual bureaucrat's effort, the equilibriums where the highest and the lowest anticipation value coincide with actual one are stable.

As for the politician's effort and delegation, when the politician's reelection rent is small, by operating the bureaucrat's incentive for effort adequately, the bureaucrat makes an effort more than the politician and the politician delegates his tasks to the bureaucrat. Such a delegation is desirable for the citizens.

When the reelection rent is intermediate, although the politician makes an effort more than the bureaucrat, the politician delegates tasks to the bureaucrat, and this delegation is not desirable for the citizens. Moreover, when the reelection rent is large, the politician makes an effort much more than the bureaucrat, the politician does not delegate his tasks, and such a situation is desirable for the citizens.

14.2 The Model

Now, we consider an economy which consists of three agents, the politician, the bureaucrat, and the citizens. The task of politician is to make an effort to implement the public works. Let this effort be e_p and $e_p \in (0, 1)$. These public works have two cases; the first one is the good project case which yields some benefits to the citizens, and the other is bad project case which does no benefits to the citizen. We can consider this public works as success when the politician or the bureaucrat can access the good project.

For the access of good project, the politician must make an effort and let the cost of effort be $c = c(e_p)$ and $c', c'' > 0$. Moreover, to ensure interior solution, we assume $c'(0) = 0, c'(1) = \infty$. Also, the politician's effort level is his private

information. Depending on his effort, whether the public works succeed or not decide stochastically. Now, we define the benefit of this public works as follows.

$$g = \begin{cases} 1 & \text{when the project is success.} \\ 0 & \text{when the project is failure} \end{cases} \tag{14.1}$$

The another factor of success is the politician's ability. We can interpret this ability in several ways. One of them is how much knowledge about the policy, including academic one, the politician has. The other is considered as the degree by which the politician can access the citizens' demand to public works. In these ways, though we can consider several factors in which the policymaker can access the good project, we express these as only "ability."

This ability θ_p has two cases, $\theta_p \in \{\theta_p^l, \theta_p^h\}$; we assume $0 < \theta_p < 1$ and $\theta_p^l < \theta_p^h$. All players (including the politician) are unknown to the politician's ability and have initial belief $\text{Prob}(\theta_p = \theta_p^h) = 1/2$. This belief is common knowledge among all players.

Now, let the probability of success of public works be $\theta_p e_p$. The politician can obtain the reelection rent R as the monetary reward and nonmonetary benefits which, to some or all authority, are generated only when he is reelected. We define the politician's utility which consists of effort cost and reelection rent R as follows.

$$U_p = \begin{cases} E(\theta_b)e_b R - c(e_p) & \text{delegation cases} \\ E(\theta_p)e_p R - c(e_p) & \text{non-delegation case} \end{cases} \tag{14.2}$$

Here, $E(\theta_i)e_i, (i = p, b)$ is expressed as the reelection probability of the politician. As for this reelection probability, we argue later in detail.

Subsequently, the politician can delegate the tasks to lead the success of public works to the bureaucrat. In this case, the bureaucrat makes an effort, and then success of public works depends on the bureaucrat's ability and effort. Let this effort be $e_b (\in (0, 1))$.

The bureaucrat's effort in case of delegation is the one which the politician, who belongs to legislative, should do basically. Note that this bureaucrat's effort is additional effort for legislative except for his ordinary administrative effort.[1] Namely, the bureaucrat always makes an effort to the administrative tasks regardless of whether he is delegated the tasks from the politician or not.

[1] In this paper, we consider that the tasks which the politician can delegate to the bureaucrat are not the ones that only the politician can fulfill, for example, attendance in congress and vote for the passing of the bill. The tasks which can be delegated by the politician are the ones that this delegation does not cause some problems such as basic agenda setting. Therefore, as same as the bureaucrat, we consider the situation in which the politician fulfills their own tasks in legislative and makes an effort. However, as for the ambiguous boundary between the tasks of politician and the one of the bureaucrat, we must discuss more whether this boundary becomes the contestation in election.

Also, the bureaucrat's effort is his private information, and it is unobservable by the politician and the citizens. As same as politician's ability, all players do not know the bureaucrat's effort and have the information and belief about the bureaucrat's ability, $\theta_b \in \{\theta_b^l, \theta_b^h\}$ and $\text{Prob}(\theta_b = \theta_b^h) = 1/2$. We assume $0 < \theta_p^l < \theta_b^l < \theta_p^h < \theta_b^h < 1$. From this assumption, we obtain $E(\theta_p) < E(\theta_b)$ and note that the average ability of the bureaucrat is higher than the politician's.

In case of delegation, all players update the belief about the bureaucrat's ability after observing the project's outcome. We assume that the politicians and citizens update the belief of the bureaucrat's ability based on a given anticipation value for the bureaucrat's effort. Let their anticipation value be e^a.

Their anticipation does not need to coincide with an effort which the bureaucrat actually made, but this anticipation affects effort level which the bureaucrat decides.

Because, when the public works succeed, the bureaucrat is recognized by all agents that his average ability is higher than the average ability based on initial belief. Such an update forms the bureaucrat's high reputation and, consequently, affects the bureaucrat's career and wage, moreover, the post after his retirement (which is often called "AMAKUDARI"). This anticipation value is common knowledge among all players.

Depending on the result of public works, the politician can understand how they update the belief and what the bureaucrat's future career and wage are. Therefore, the politician can anticipate correctly how much effort the bureaucrat makes based on his future profit. If the bureaucrat's effort is sufficiently close to politician's effort or higher than one, the politician will delegate his tasks to the bureaucrat for the reduction of effort cost.

However, when the politician does not delegate his tasks, the update of belief is not done. So all players estimate the bureaucrat's expected ability based on initial belief.

In the framework of career concern, we define the bureaucrat's expected ability based on updated belief as $E(\theta_b^{ud})$ and his future profit as $X(E(\theta_b^{ud})), X'' < 0 < X'$. From this, the bureaucrat's utility is described as follows:

$$U_b = \begin{cases} X(E(\theta_b^{ud})) - c(e_b) & \text{delegation case} \\ X(E(\theta_b)) - c(e_b) & \text{non-delegation case.} \end{cases} \tag{14.3}$$

Finally, we define the citizens' utility. The citizens can observe whether the politician delegates the tasks to the bureaucrat or not. Therefore, only when the citizens observed delegation from the politician to the bureaucrat, they update their belief for the bureaucrat's ability. The citizens are voters and decide whether they reelect the politician or not after observing the result of public works. However, the citizens cannot observe the bureaucrat's effort.

The citizens can obtain the size 1 benefit when the public works succeed. But they cannot obtain any benefit when these public works fail. Then, we define the following citizens' expected utility:

$$U_r = \begin{cases} E(\theta_p)e_b & \text{delegation case} \\ E(\theta_b)e_b & \text{non-delegation case.} \end{cases} \tag{14.4}$$

Subsequently, we assume the citizens adopt the following voting rule; they reelect the politician if the public works are a success and do not reelect him if it is a failure.[2] Therefore, the reelection probability of politician coincides with the one of success of public works. The timing of the game is as follows. In the first stage, θ_p, θ_b, and e^a decide. In the second stage, the politician decides whether he delegates tasks to the bureaucrat or not. In the third stage, the politician or the bureaucrat makes an effort depending on delegation. In the fourth stage, the public works outcome is realized depending on effort and ability. In the fifth stage, the citizens decide whether they reelect the politician or not. In the final stage, the bureaucrat obtains future profit X and the politician does reelection rent R.

14.3 The Benchmark (Without AMAKUDARI)

In this case, so if there is no increase of future profit by update of belief, the bureaucrat does not make an effort, namely, $e_b = 0$. Therefore, in the case without AMAKUDARI, the politician does not delegate tasks to the bureaucrat so that he will always lose the election because the bureaucrat does not make any effort, namely, reelection probability is 0.

14.3.1 The Politician's Behavior

In this case, the politician implements his tasks by himself. The optimal effort level of the politician is decided by following maximization problem:

$$\max_{e_p} U_p = E(\theta_p)e_p R - c(e_p). \tag{14.5}$$

From first-order condition, we obtain the optimal effort of politician e_p^* which satisfies the following equation:

$$E(\theta_p)R = c'(e_p^*). \tag{14.6}$$

[2]We can consider such a situation as the one that the citizens who have reservation utility V such as $0 < V < 1$ reelect the politician when the benefit of the public works exceeds his reservation utility, not reelect when it does not exceed his one.

The optimal effort level for the politician increases with the reelection rent R and the expected ability of politician based on initial belief. This is led by the fact that the effort and the ability complement each other so that the expected benefit for the politician consists of the product of the politician's effort and ability.

14.4 The Case That There Is AMAKUDARI

In this case, only when the bureaucrat is delegated with tasks from the politician that the belief of the bureaucrat's ability is updated by the citizens and the politician after observing the result of public works. If his effort leads to the higher assignment of probability to high ability, the bureaucrat has incentives to effort to appeal of his high ability to the social.

14.4.1 The Bureaucrat's Behavior

Even the case of AMAKUDARI, when the politician does not delegate tasks to the bureaucrat, his ability is evaluated as initial expected ability so that there is no update of his ability. Consequently, as same as the previous analysis, it is optimal for the bureaucrat not to make an effort. Now we consider the case that the politician delegates to the bureaucrat.

Then, under some anticipation value of the bureaucrat's effort, the probability by which he is recognized as high-ability person is by Bayes rule:

$$Prob(\theta_b = \theta_b^h | success) = \frac{\frac{1}{2}\theta_b^h e^a}{\frac{1}{2}\theta_b^l e^a + \frac{1}{2}\theta_b^h e^a} = \frac{\theta_b^h}{\theta_b^l + \theta_b^h} \left(> \frac{1}{2} \right). \tag{14.7}$$

If public works succeed, the expected ability of the bureaucrat based on ex post belief is higher than ex ante expected one. Moreover, note that this ex post belief does not depend on the citizens' anticipation about the bureaucrat's effort. Also, we define the ex post expected ability of the bureaucrat $E(\theta_b^{ud})$ as θ_b^{es}. Then,

$$\theta_b^{es} = \frac{\theta_b^h}{\theta_b^l + \theta_b^h}\theta_b^h + \frac{\theta_b^l}{\theta_b^l + \theta_b^h}\theta_b^l = \frac{(\theta_b^h)^2 + (\theta_b^l)^2}{\theta_b^l + \theta_b^h}. \tag{14.8}$$

Subsequently, we analyze the ex post belief in the case of failure. Then,

$$Prob(\theta_b = \theta_b^h | failure) = \frac{\frac{1}{2}(1-\theta_b^h e^a)}{\frac{1}{2}(1-\theta_b^h e^a)+\frac{1}{2}(1-\theta_b^l e^a)} = \frac{(1-\theta_b^h e^a)}{(1-\theta_b^h e^a)+(1-\theta_b^l e^a)} (\equiv A). \tag{14.9}$$

As same as above,

$$Prob(\theta_b = \theta_b^l | failure) = \frac{(1-\theta_b^l e^a)}{(1-\theta_b^h e^a)+(1-\theta_b^l e^a)} (\equiv B). \tag{14.10}$$

As for the ex post belief in case of failure,

$$\frac{dA}{de^a} = -\frac{1}{4}\frac{(\theta_b^h - \theta_b^l)}{\left(1-\frac{(\theta_b^h+\theta_b^l)e^a}{2}\right)^2} (< 0) \tag{14.11}$$

and

$$\frac{dB}{de^a} = \frac{1}{4}\frac{(\theta_b^h - \theta_b^l)}{\left(1-\frac{(\theta_b^h+\theta_b^l)e^a}{2}\right)^2} (> 0). \tag{14.12}$$

In case of failure, the ex post belief of high ability decreases with the citizens' anticipation value. On the contrary, the one of low ability increases with it. This fact is a risk for the bureaucrat to make an effort.

Let the expected ability when public works fail be $E(\theta_b^{ud}) = \theta_b^{ef}(e^a)$. Then,

$$\theta_b^{ef}(e^a) = A\theta_b^h + B\theta_b^l,$$

and

$$\frac{d\theta_b^{ef}(e^a)}{de^a} = \theta_b^h \frac{dA}{de^a} + \theta_b^l \frac{dB}{de^a} = -\frac{1}{4}\frac{(\theta_b^h - \theta_b^l)^2}{\left(1-\frac{(\theta_b^h+\theta_b^l)e^a}{2}\right)^2} (< 0). \tag{14.13}$$

From this equation, we see that, when the public works fail, the ex post expected ability of the bureaucrat decreases with the citizens' anticipation of bureaucrat's effort level. Also, from (14.13), we can easily check that $\frac{d^2\theta_b^{ef}}{de^2} < 0$ in $0 < e < 1$. Moreover, the interval of the ex post expected ability of the bureaucrat between the success and the failure is

$$\theta_b^{es} - \theta_b^{ef}(e^a) = \frac{(\theta_b^h - \theta_b^l)^2}{(\theta_b^h + \theta_b^l)((1-\theta_b^h e^a)+(1-\theta_b^l e^a))} (> 0). \tag{14.14}$$

Lemma 14.1 *The higher the citizens' anticipation value to the bureaucrat's effort is, in the case of failure, the lower the bureaucrat's ability is regarded. Moreover, as the citizens' anticipation value to the bureaucrat's effort is getting higher, the interval of the ex post expected ability of the bureaucrat between the success and the failure is getting larger.*

Subsequently, the success probability of public works in ex ante stage is $\frac{1}{2}\theta_b^h e_b + \frac{1}{2}\theta_b^l e_b = E(\theta_b)e_b$, and the failure probability is $1 - E(\theta_b)e_b$.

Therefore, we can define the bureaucrat's expected utility as follows:

$$\begin{aligned} EU_b &= E(\theta_b)e_b(X(\theta_b^{es}) - c(e_b)) + (1 - E(\theta_b)e_b)(X(\theta_b^{ef}(e^a)) - c(e_b)) \\ &= (X(\theta_b^{es}) - X(\theta_b^{ef}(e^a)))E(\theta_b)e_b + X(\theta_b^{ef}(e^a)) - c(e_b) \end{aligned} \tag{14.15}$$

From the first-order condition, we obtain the optimal effort level for the bureaucrat e_b^* from the following equation:

$$(\bar{X} - X(\theta_b^{ef}(e^a)))E(\theta_b) = c'(e_b^*) \qquad (\bar{X} = X(\theta_b^{es})) \tag{14.16}$$

Also, we can easily check if the second-order condition is satisfied. Here, we draw the following figure to describe the relation of the citizens' anticipation value to the bureaucrat's effort and the actual bureaucrat's effort.

The left-hand side of Eq. (14.16) corresponds to horizontal line in Fig. 14.1. The height of this line denotes the magnitude of the bureaucrat's incentive to effort which

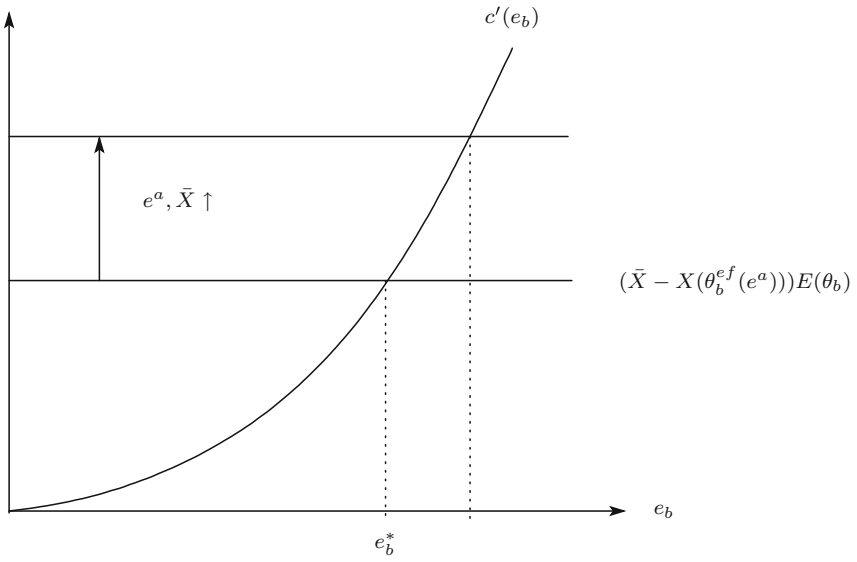

Fig. 14.1 The bureaucrat's decision of effort

makes the increase of bureaucrat's future profit by leading the success of public works possible.

As we see in Lemma 14.1, the rise of the citizens' anticipation value has an effect which makes the interval of future profit of the bureaucrat between success and failure increase.

The more this interval increases, the more the bureaucrat makes an effort, so that the bureaucrat's incentive to lead success rises to get his increasing future profit. Such an increase of bureaucrat's effort is based on selfish reason that the bureaucrat wants to make sure to increase future profit, not to live up to citizens' expectation.

Moreover, if $\bar{X}$ which is the future profit of the bureaucrat by success of public works rises, the bureaucrat raises his effort level. This is a very intuitive result as we have seen in ordinary incentive theory.

Now, we focus on the rational expectation equilibrium in which the actual effort of the bureaucrat corresponds to the citizens' anticipation. At first, from (14.16) which denotes the decision of bureaucrat's optimal effort, we see that

$$\frac{de_b^*}{de^a} = -\frac{E(\theta_b) \cdot X'(\theta_b^{ef}(e^a))(\theta_b^{ef}(e^a))'}{c''(e_b^*)} (> 0). \tag{14.17}$$

Also,

$$\begin{cases} \theta_b^{ef}(0) = E(\theta_b) & \text{when } e^a = 0 \\ \theta_b^{ef}(1) = \frac{\theta_b^h(1-\theta_b^h)+\theta_b^l(1-\theta_b^l)}{(1-\theta_b^h)+(1-\theta_b^l)} & \text{when } e^a = 1. \end{cases} \tag{14.18}$$

From this Eq. (14.16), we see that the left-hand side of Eq. (14.16) is finite for any $e^a \in [0, 1]$. And taking into account continuity of Eq. (14.16) in $e^a \in [0, 1]$, $e^a = e_b$ which is the condition of rational expectation equilibrium and Eq. (14.16) has a solution (e^a,e_b) in (0,1). Although this fact implies the existence of rational expectation equilibrium in (0,1), this equilibrium is not always unique.

Now we draw the case that there exist three rational expectation equilibriums.

The curve in Fig. 14.2 corresponds to Eq. (14.16) which denotes the relation of the citizens' anticipation and the bureaucrat's actual effort. From Eq. (14.17), this curve is increasing with e^a. The intersections of this curve and 45 line are given by the points A, B, and C. These points are the rational expectation equilibriums. Examining the stability of these equilibriums, we can consider that the point A and C are stable, but the point B is unstable.[3] Both of the equilibriums at the

[3]To start the argument of stability, since the actual effort of the bureaucrat is his private information, it needs to add some assumptions including the process of adjustment of anticipation. At first, we assume that this game between the politician and the bureaucrat is repeated over many terms and the effort level of bureaucrat in some term is revealed at the beginning of the next term, namely, in the beginning of the next term; all players know the bureaucrat's effort level in the previous term. This is possible in some measure by the investigation and report of some organization and

highest and the lowest effort level which the citizens anticipate are stable rational expectation equilibriums, and the middle one is unstable.[4] Moreover, when the ex ante bureaucrat's expected ability $E(\theta_b)$ rises, the curve in this Fig. 14.2 shifts upward in the range that e_b does not exceed 1 when $e^a = 1$. In the rational expectation equilibrium, we see that the bureaucrat's actual effort increases with the ex ante bureaucrat's expected ability.

When the ex ante expected bureaucrat's ability goes on rising, the middle and lowest rational expectation equilibriums are getting close. Thereafter, the number of equilibriums decreases to two, and, finally, the highest rational expectation equilibrium becomes a stable and unique one.

From these discussions, we obtain the following proposition.

Theorem 14.2 *(1) The actual bureaucrat's effort increases with the citizens' anticipation value to the bureaucrat's effort and his future profit in case of success.*

(2) When there exist multiple rational expectation equilibriums, the highest and lowest ones are stable. When the ex ante expected bureaucrat's ability goes on

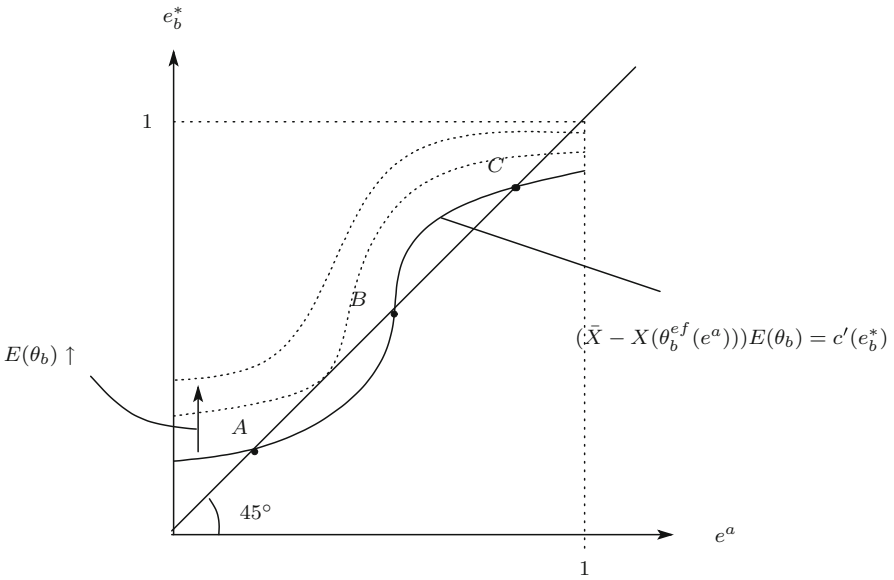

Fig. 14.2 Rational expectation equilibriums

mass communication. Second, we assume that the citizens and the politician adopt the adjustment mechanism of anticipation which the citizens adopt the actual bureaucrat's effort in term t as the anticipation in term $t+1$, namely, myopic adjustment as $e_{bt}^*(e_t^a) = e_{t+1}^a$. By these assumptions, the points A and C are stable.

[4] As for stability, the result is same in the case that the number of equilibriums is more than four, too.

rising, the middle and lowest rational expectation equilibriums disappear and the highest one becomes unique and stable one.

14.4.2 The Politician's Behavior

Considering the bureaucrat's behavior in previous section, the politician decides whether he delegates tasks to the bureaucrat or not. When he does not delegate, the politician efforts at the level that is given in Eq. (14.6). In this case, the politician's expected utility is

$$EU_p^{nd} = E(\theta_p)e_p^* R - c(e_p^*). \tag{14.19}$$

Also, when he delegates, the politician cannot control the bureaucrat's effort and the bureaucrat efforts at the level that is given in Eq. (14.16). In this delegation case, the politician does not have to pay the effort cost.

Therefore, his expected utility is

$$EU_p^{d} = E(\theta_b)e_b^* R. \tag{14.20}$$

If $EU_p^{nd} < EU_p^{d}$ is satisfied, the politician delegates the tasks to the bureaucrat. We can rewrite this condition of delegation as follows.

$$R(E(\theta_p)e_p^* - E(\theta_b)e_b^*) < c(e_p^*) \tag{14.21}$$

The left-hand side of this equation denotes the increase of benefit that the controlling the reelection probability by fulfilling tasks by himself generates. The right-hand side of this equation denotes the effect of effort cost reduction.

When $e_p^* = e_b^*$, namely, the bureaucrat efforts as much as the politician does, this condition is always satisfied. This is why the politician reduces the effort cost without decline of his reelection probability.

14.5 An Equilibrium Analysis

In this section, we examine how the reelection rent R and the bureaucrat's future profit in success $\bar{X}$ affect the effort level of the bureaucrat and the politician. At first, for a given $\bar{X}$, we analyze how the change of reelection rent affects the politician's effort and delegation behavior. Subsequently, we do how the change of $\bar{X}$ affects the delegation behavior and whether such a delegation is desirable for the citizens or not.

Seeing the sign of the Eq. (14.21) that is the condition of the politician's delegation for R, we can draw following Fig. 14.3 by using envelope theorem.

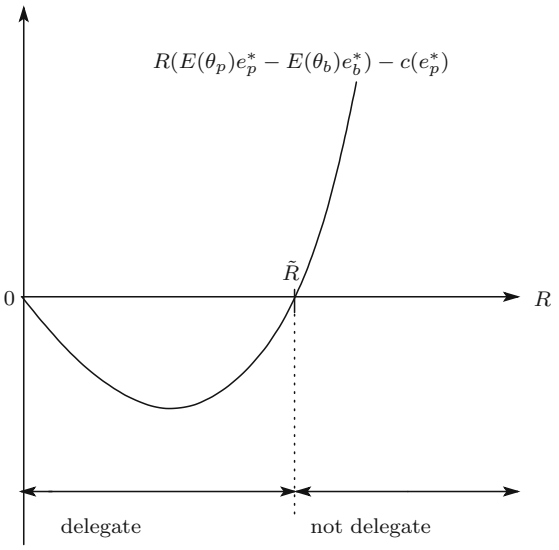

Fig. 14.3 Delegate or not

The slope of $R(E(\theta_p)e_p^* - E(\theta_b)e_b^*) - c(e_p^*)$ in this figure is decided by the value of $E(\theta_p)e_p^* - E(\theta_b)e_b^*$. Now, since e_p^* increases with R, $R(E(\theta_p)e_p^* - E(\theta_b)e_b^*) - c(e_p^*)$ decreases until R derives $E(\theta_p)e_p^* = E(\theta_b)e_b^*$ and thereafter increases with R. Therefore, for some R which is smaller than $\tilde{R}$ in the figure, the politician delegates, but for the one which is larger than it, he does not delegate.

Moreover, since this $\tilde{R}$ depends on the size of $E(\theta_b)e_b^*$ and the size of $E(\theta_b)e_b^*$ depends on e_b^*, $\tilde{R}$ depends on $\bar{X}$. Namely, the larger $\bar{X}$ is, the larger $\tilde{R}$ is.

From these arguments, we obtain the following lemma.

Lemma 14.3 *Under the sufficiently small reelection rent, the politician delegates his tasks to the bureaucrat. Conversely, under the sufficiently large reelection rent, the politician implements his tasks by himself. Also, when the bureaucrat will be allocated his post after his retirement in order to reflect his ability more, the threshold of reelection rent such as the politician delegate is getting larger.*

When the reelection rent is sufficiently large, so the politician has large incentive to effort, he can raise the reelection probability by implementing his tasks by himself in spite of his lower expected ability to the bureaucrat. This effect exceeds the effort cost reduction effect. Therefore, he does not delegate. This is so intuitive result.

On the contrary, when the slope of the bureaucrat's incentive scheme is large, namely, $\bar{X}$ is large, he delegates his tasks to the bureaucrat so that the bureaucrat makes more effort.

Here, we set the following assumption for the bureaucrat's incentive scheme.

Assumption 1 *As for the bureaucrat's incentive scheme, $K \geq \bar{X}$. (K is constant.)*

This assumption reflects the fact that there is limit of the post after retirement which is allocated to the bureaucrat.

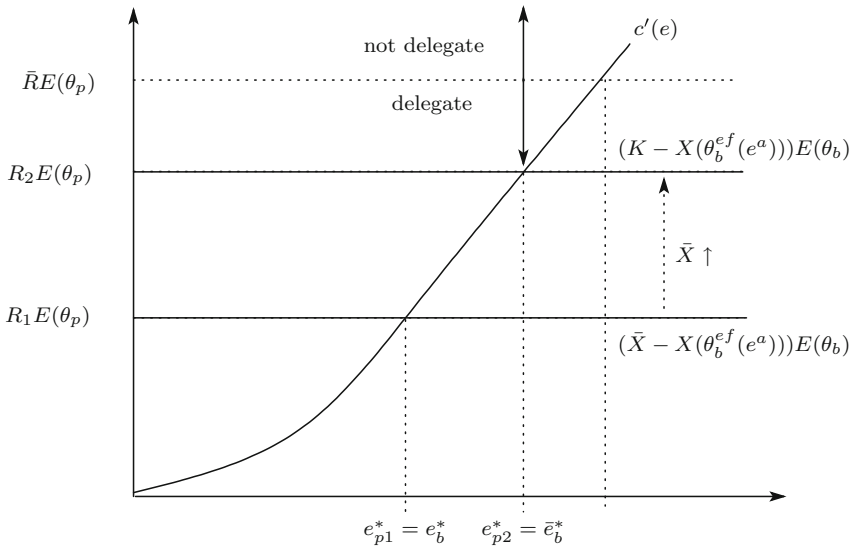

Fig. 14.4 The relation of effort and delegation

Subsequently, let R_2 be the reelection rent that derives the same level of the bureaucrat's effort, when the bureaucrat's incentive is K, to the politician. When the reelection rent is larger than R_2, the politician always makes an effort more than the bureaucrat.

Now we examine the relation of the delegation and the effort level of the politician and the bureaucrat in following Fig. 14.4.

We define the following notations: the bureaucrat's effort level for some X is e^*_b, the reelection rent which derives this bureaucrat's effort level to the politician is R_1, and the politician's effort level under this R_1 is e^*_{p1}; moreover, the bureaucrat's effort level when his incentive is $\bar{X}$ is $\bar{e}^*_b$, the reelection rent which derives this bureaucrat's effort level to the politician is R_2, and the politician's effort level under this R_2 is e^*_{p2}. In addition, let the reelection rent which is indifferent for the politician between the delegation and non-delegation be $\bar{R}$. As we can see from this figure, it is obvious that, under some $\bar{X}$, the equilibrium effort level of the bureaucrat is higher than the politician's one for any R satisfies $R < R_1$. The politician always delegates in this case.

Also, for $R(> R_2)$, the politician's effort is higher than the bureaucrat's for any incentive scheme to the bureaucrat. Moreover, for $R_1 < R < R_2$, by operating $\bar{X}$ well, it makes possible that the bureaucrat makes an effort more than the politician.

Therefore, in the range $R < R_2$, the bureaucrat, who has higher expected ability than the politician, makes more effort than the politician; this delegation is desirable for the citizens because this one generates higher success probability of public works.

Subsequently, we consider the situation that the bureaucrat's incentive scheme is raised to the limit $\bar{X}$. Then, the bureaucrat's effort level is equal to e_{p2}^* which the politician does under R_2 and any incentive scheme cannot make the bureaucrat to exert more effort. Let the bureaucrat's effort level here be $\bar{e}_b^*$.

Also, it is obvious that $\tilde{R}$ is larger than R_2 because, under the reelection rent which is slightly larger than R_2, the politician can reduce his effort cost without declining his reelection probability as the interval between the politician's effort and the bureaucrat's is sufficiently small. Accordingly, under such a reelection rent, the politician delegates his tasks to the bureaucrat.

Defining the threshold of delegation when the bureaucrat's incentive is $\bar{X}$ as $\bar{R}$, in $R_2 < R < \bar{R}$, although the politician makes an effort more than the bureaucrat if he does not delegate, he delegates his tasks to the bureaucrat for the reduction of effort cost.

The following proposition is derived from these arguments.

Theorem 14.4 *(1) In $R < R_2$, by raising the bureaucrat's incentive scheme $\bar{X}$, the bureaucrat makes an effort more than the politician if the politician delegates. In a view of success of public works, it is desirable because the bureaucrat who has higher expected ability than the politician makes an effort more than the politician.*

(2) In $R_2 < R < \bar{R}$, the politician delegates his tasks to the bureaucrat although the politician makes an effort more than the bureaucrat if he does not delegate.

(3) In $R > \bar{R}$, the politician's effort level is sufficiently higher than the bureaucrat's and the politician does not delegate.

Here, we examine whether such a delegation is desirable for the citizens or not. When $R < R_2$, by designing incentive scheme to the bureaucrat adequately, the bureaucrat who has higher expected ability than the politician is delegated the tasks and makes an effort more than the politician. Therefore, such a delegation is desirable for the citizens.

Subsequently, we analyze in case of $R_2 < R < \bar{R}$. We can rewrite the definition of $\bar{R}$ as

$$E(\theta_p)e_p^* - \frac{c(e_p^*)}{\bar{R}} = E(\theta_b)e_b^*.$$

From this equation, we obtain $E(\theta_p)e_p^* > E(\theta_b)e_b^*$. This inequality is held when R is slightly smaller than $\bar{R}$. In the area of $R_2 < R < \bar{R}$, though the politician delegates his tasks to the bureaucrat, as for the success probability of public works in ex ante stage, $E(\theta_p)e_p^* > E(\theta_b)e_b^*$ is held. Then, we see that there exists some area where the undesirable delegation for the citizens is implemented. In such an area, the success probability when the politician implements his tasks by himself is higher than the one when he delegates.

Also, in the area of $R > \bar{R}$, the delegation is not implemented and $E(\theta_p)e_p^* > E(\theta_b)e_b^*$ is always satisfied. Therefore, this situation is desirable in a view of the citizens.

Theorem 14.5 *(1) In $R < R_2$, the desirable delegation for the citizens, such as the bureaucrat makes an effort more than the politician, is implemented.*
(2) In $R_2 < R < \bar{R}$, there exists some area for R where the undesirable delegation for the citizens is implemented.
(3) In $R > \bar{R}$, the delegation is not implemented and this is desirable for the citizens.

14.6 Concluding Remarks

In this paper, we have examined about reelection which is the politician's incentive to effort and the future profit which is the bureaucrat's incentive to do. At first, as for the bureaucrat's effort, the higher the citizens' anticipation value is, the more the bureaucrat makes an effort to obtain his future profit. In rational expectation equilibriums, the ones where the highest and lowest anticipation value corresponds to actual effort are stable.

Subsequently, for the politician's effort and delegation, when the politician's incentive to reelection is sufficiently small or large, by operating the bureaucrat's incentive scheme adequately, the bureaucrat makes more effort, and this situation is desirable for the citizens. In this case, to assign the better post for the bureaucrat who showed his higher ability is not contrary to the citizens' benefit.

Also, when the politician's incentive to reelection is intermediate, any operation of incentive scheme of the bureaucrat cannot make the bureaucrat to exert more effort. In this case, the interval between the politician's effort and the bureaucrat's is close. Therefore, the reduction effect of effort cost by delegation exceeds the decline effect of reelection probability. Thus, the politician delegates his tasks to the bureaucrat. However, the success probability of public works by the politician is higher than the one by the bureaucrat. Such a delegation is obviously undesirable for the citizens. In the view of the citizens, it would seem the default of the politician.

To avoid such a situation, the politician's reelection rent has to be raised more. However, in this paper, we did not consider the fact that this politician's rent and the bureaucrat's AMAKUDARI generate the distortion of resource allocation and it decreases social welfare. Especially, AMAKUDARI is often argued that it leads fiscal distortion. To examine this problem, we must modify the model by focusing more on the bureaucratic organization.

As the problem that we have not analyzed yet, we must consider who design the bureaucrat's incentive scheme. If the politician can design it, he has incentive to approve AMAKUDARI when his reelection rent is not large. Also, if the bureaucrat can design it, he may do it as it derives excessive future profit to him. Such

incentive scheme is obviously socially undesirable, and only the politician and the bureaucrat can amend such a scheme. However, they may not have incentive to improve it.

In the political and administrative reform, all we have to do is not only the submission of reform. The politician and the bureaucrat may not have incentive to this reform which may harm their interests. Especially, when public works are a failure, they may not fulfill the accountability to the citizen. To make an implementation of this reform easier, we must maintain the transparency of political and administrative tasks and establish the accomplishment evaluation system which has externality.

However, this reform that deprives the politician and the bureaucrat of their interest has possibility that it distorts the talent allocation in labor market. Namely, for high-ability individual, the politician and the bureaucrat, especially the politician, it becomes a high-risk occupation. This may prevent the high-ability individual from entering in this section. We must discuss carefully how this possibility affects the citizens' welfare.

Even if the public sector needs high-ability person, the protection of their interest needs to employ such individuals. If this protection decreases the citizens' welfare, we may obtain the result that such an individual should be put in the private sector, not public sector. Therefore, we would need to extend the model to the individuals' occupation selection stage through labor market.

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