



Munich Personal RePEc Archive

# **Making politicians and bureaucrats deliver: decentralization and interlinked tasks**

Goyal, Ashima

Indira Gandhi Institute of Development Research

1 April 2010

Online at <https://mpra.ub.uni-muenchen.de/41416/>  
MPRA Paper No. 41416, posted 18 Sep 2012 13:58 UTC

## **Making Politicians and Bureaucrats Deliver: Decentralization and Interlinked Tasks**

Ashima Goyal\*

April 2010

### **Professor**

Indira Gandhi Institute of Development Research  
Gen. Vaidya Marg, Santosh Nagar,  
Goregaon (E), Mumbai-400 065  
ashima @ igidr.ac.in  
Tel.: +91-22-28416524 Fax: +91-22-28402752  
<http://www.igidr.ac.in/~ashima>

I

### **Abstract**

The paper analyzes incentive compatible task allocation between bureaucrats, central and local politicians in conjunction with the type of task. If effort in one task is an input in another task, giving the bureaucrat the second task as his objective will ensure the completion of both tasks. Compared to central politicians, lower level politicians may have more local power so decentralization requires a compensatory rise in local monitoring to make them more accountable to the public. Local monitoring is relatively easier, but even with it, local politicians put in less effort than local bureaucrats. Showing how the analysis can improve the provision of durable assets under the Mahatma Gandhi national rural employment guarantee scheme, and more generally improve the quality of public services, demonstrates its utility.

*Key words:* Politician, bureaucrat, incentives, task allocation, decentralization

JEL Classification nos.: O13, H11, D72, D73

---

\* I thank Srijit Mishra, Vadiraj Panchamukhi, Manoj Panda, R. Radhakrishna, Anupam Rastogi and N. Sengupta for comments and discussions, Ankita Agarwal and Rijo John for research assistance, Reshma Aguiar and T.S. Ananthi for help with the word processing. The paper is a revised version of part of an IGIDR discussion paper. Useful comments were received when the argument was presented at a workshop in IIT, Kanpur.

## **I. Introduction**

In a democracy a voter as the principal has to achieve results through agents, the politicians and bureaucrats, under imperfect information. The paper shows how, with context sensitive incentive design, the division of tasks between central and local politicians and bureaucrats, can achieve the voter's objectives. Recent history has seen the failure of both markets and governments. It has also shown that both are required. The way forward is to improve the functioning of both. One way to do this is to design better incentives.

The field of political economics is concerned with understanding incentives and outcomes in different forms of government and their supporting institutions, when agents have their own objectives. It recognizes information and other constraints that cause policies to differ from optimal policies and leads to a normative research program to discover which policymaking institutions produce better policy outcomes and how institutions can be changed<sup>1</sup>. Alesina and Tabellini (2007, 2008) argue that career concerns motivate bureaucrats while for politicians the objective is to get re-elected. If a bureaucrat's career depends on helping politicians achieve their objectives, both would have similar objective functions. But designing incentive contracts for bureaucrats can divorce the two objective functions. With this divorce, they ask how policy-making power should be allotted between bureaucrats and politicians in order to maximize aggregate welfare. We further distinguish between a task (task A), which is an input into another one (task B), and between a central and a local politician in a federal structure. Such task pairs could be one with a short-run and another with a long-run output such as the Indian Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) where short-run employment can be used to create long-run assets. Another example is where additional input into the first task improves the quality of the output. Improving the quality of public services is one of the most critical unmet needs in Indian reforms.

---

<sup>1</sup> Persson and Tabellini (2000) review the field. Some useful papers concerned with task allocation are Hart et. al. (1997) who examine the distribution of activities between the public and private sector; Dewatripont and Tirole (1999), who explore how to design optimal information extraction from biased participants.

The analytical results derived are: Where local politicians are easier to monitor, tasks should be decentralized to them, but local monitoring must itself be strengthened to prevent capture by parochial elements that otherwise would find little local resistance. Increasing political competition and strengthening non-political civic institutions will help. If task A and task B share resources, but additional inputs are required for task B, a bureaucrat motivated by career concerns or incentives will focus on task A; the politician who has to compete with an “average” politician will focus on both tasks. But if task B yields results only after elections, or an electoral majority can be achieved with task A, the politician will neglect task B. It turns out giving the bureaucrat task B, as his objective, will ensure the completion of both tasks. Since task A is required for task B, effort must be allocated to task A even if the objective is task B in order to achieve task B. The bureaucrat will work even harder if task B requires more skill, and there is high variation in the distribution of skill. For local tasks where monitoring is better, local politicians put in less effort than local bureaucrats, so motivating the latter improves outcomes. After deriving the incentive features we demonstrate some applications, first, the functioning of the MGNREGS, and second, improving the quality of public services.

The structure of the paper is as follows: Section 2 presents the basic analytical framework, develops the public servants’ objective functions, compares allocation of tasks between the local and central agent, and the distribution of financing across agents and tasks. Section 3 compares results from allocating the tasks to the local politician or the bureaucrat; section 4 examines how leakages can be reduced; section 5 the distribution of financing between the two tasks; section 6 demonstrates applications of the analysis. Section 7 concludes.

## **II. The Analytical Framework**

How do voters, who are the principals, extract the best work from their agents, the politicians and bureaucrats, each of whom has his own objectives? Agents are heterogeneous. A sense of duty may motivate exceptional agents, but the average agent must also perform—appropriate task allocation and incentives can induce better performance. Beginning with a very general framework, based on Alesina and Tabellini

(2007, 2008), we modify it as required to analyze the issue of local versus central government and of tasks that are subsets of others.

A policy outcome  $y$  is conditional on effort  $a$  of a public servant, his random ability,  $\theta \sim N(\bar{\theta}, \sigma_\theta^2)$  (distributed normally with mean  $\bar{\theta}$  and variance  $\sigma_\theta^2$ ) and finance  $f$ . The three are additive.

$$y = \theta + a + f \quad (1)$$

The public servant could be a bureaucrat B, or a politician P. Citizens get utility from the policy outcome according to a simple linear, well-behaved utility function,  $U(y) = y$ .

The public servant's cost,  $C(a)$ , is strictly convex and increasing in effort:

$$C_a > 0, C_{aa} > 0$$

Effort  $a$  lies in the domain  $[0, \infty)$ . He gets reward for effort,  $R$ , and maximizes own utility:

$$R(a) - C(a) \quad (2)$$

Consider a policy outcome that has two components, the output of the first task A is  $y_1$ , and of the second task B is  $y_2$ . Using  $y_1$  to create  $y_2$  requires effort  $a_2$  additional to the effort  $a_1$  required to just create  $y_1$ ;  $y_2$  requires additional financing  $f_2$  over the  $f_1$  required for  $y_1$ . So  $f > f_1$ ,  $f = f_1 + f_2$ . A central committee of ministers makes the decision on finance. The two policy outcomes are determined by:

$$y_1 = \theta + a_1 + f_1 \quad (3)$$

$$y_2 = \theta + a_1 + a_2 + f \quad (4)$$

The cost function,  $C(a_1, a_2) = C_1(a_1) + D(a_1)C_2(a_2)$ , has  $C_1(0) = C_2(0) = 0$ .  $C_i(x)$  is increasing and strictly convex in  $x (> 0)$  for  $i = 1, 2$  and

$$D(a_1) = \begin{cases} 1 & \text{if } a_1 > 0 \\ 0 & \text{if } a_1 < 0 \end{cases}$$

The  $D$  term captures the fact  $a_1$  is necessary to produce  $y_2$ , so effort cannot be undertaken for  $y_2$  unless a positive value of  $a_1$  is chosen. Also  $y_1$  and  $y_2$  add up to give the full policy outcome  $y$ , that is,  $y = y_1 + y_2$ . Let  $y_1$  be employment and  $y_2$  be asset creation resulting from employment under MGNREGS. Labour could be used to just dig holes, in which case no  $y_2$  is created. Durability or quality requires more effort.

The timing is as follows: first,  $f$  and its distribution is determined, second, society allocates tasks to the B or the P. Third, the public servant chooses effort before knowing his ability,  $\theta$ . Fourth, nature chooses  $\theta$  and outcomes are observed. Finally, the reward is paid. Since principals can only observe the outcome  $y$ , not its composition between effort, ability and finance, the agent's reward is based on  $y$ .

*The Politician:* If the public servant is a politician, his reward is getting re-elected, and for this to happen  $y$  must exceed some threshold  $W$ . Therefore the benefits of holding office equal the probability that  $y$  exceeds the threshold  $W$ . This in turn equals the probability that ability, given effort and finance, is higher than the level required to achieve  $W$ . The latter is one minus the probability that ability is below the level that would give the threshold, when the benefits of holding office are normalized to unity.

$$R^p(a) = \Pr(y \geq W) = 1 - \Pr(\theta \leq W - a - f) \quad (5)$$

The threshold  $W$  is determined by the alternative available to voters. Since they are rational, they know the alternative is electing another politician of average ability, ( $\bar{\theta}$  denotes average ability), who can be expected in equilibrium to put in the same amount of effort  $a^e$  and finance  $f^e$  as the current politician. Therefore:

$$W = \bar{\theta} + a^e + f^e \quad (6)$$

Substituting for  $W$ , the politician's objective function can be written as:

$$\underset{a}{\text{Max}} 1 - \Pr(\theta \leq \bar{\theta} + a^e + f^e - a - f) - C(a)$$

That is, he maximizes the probability that his ability is above average. The first order condition, FOC, (7), obtained implicitly determines his equilibrium effort,  $a^p$ . He puts in enough effort so as not to be taken as being below average ability.

$$n(\bar{\theta}) = C_a(a^p) \quad (7)$$

Where the density of the normal distribution of  $\theta$ , evaluated at its mean, is  $n(\bar{\theta}) = 1/\sigma_\theta \sqrt{2\pi}$ .

Next we bring in a distinction between a central (denoted by subscript C) and a local level (L) politician. Performance  $y$  differs if a central or a local politician manages the task. We introduce noise terms  $\varepsilon_L \sim N(0, \sigma_{\varepsilon_L}^2)$ ,  $\varepsilon_C \sim N(0, \sigma_{\varepsilon_C}^2)$  uncorrelated with  $\theta$ , but  $\sigma_{\varepsilon_C}^2 > \sigma_{\varepsilon_L}^2$  so that noise is higher with the distant politician. That is, monitoring is more imperfect for the distant politician.

$$y_L = \theta + \varepsilon_L + a + f \quad (8)$$

$$y_C = \theta + \varepsilon_C + a + f \quad (9)$$

The politician's objective function is the same, but now the  $\Pr(y \geq W)$  is computed from a distribution with a higher variance. The mean of the noise term is zero, so the first order condition (7) is changed to:

$$n(\bar{\theta}, 0) = C_a(a^{Pc}) \quad (10)$$

Where the density of the random variable  $\theta + \varepsilon$ ,

$$n(\bar{\theta}, 0) = 1 / (\sqrt{\sigma_{\theta}^2 + \sigma_{\varepsilon}^2} \sqrt{2\pi}) \quad (11)$$

is evaluated at the mean of both  $\theta$  and the two  $\varepsilon$ s (the mean is 0 for both). It follows that since  $\sigma_{\varepsilon_C} > \sigma_{\varepsilon_L}$ :

$$C_a(a^{Pc}) < C_a(a^{PL}) \quad (12)$$

Since  $C(\cdot)$  is a strictly increasing function (12) implies  $a^{Pc} < a^{PL}$ . The local politician would put in more effort compared to the central politician. The analysis above gives:

**Result 1:** *The central politician will put in less effort compared to the local politician, since it is more difficult to monitor the performance of the former. Welfare would be maximized if the task were delegated to a local politician.*

Now consider  $f$ . We assume a larger share of total taxes is raised centrally. With an effective decentralization of local public service provision, a large amount of funds would be available to transfer to local governments. Financing can come from the central

politician<sup>2</sup>, if improved audit reports and budgets raise transparency in its allocation and use. But a small share raised through local taxes would improve local incentives to monitor. From now on, since we focus on the local bureaucrat and politician, we drop  $f$  to save notation, coming back to the distribution of  $f$  between the two tasks in section 5. We assume a local scheme will not be launched unless finances are secured.

*The bureaucrat:* We postulate the bureaucrat is motivated by career concerns<sup>3</sup>. His reward is therefore, the perception of his ability,  $\theta$ , conditional on output, which depends on expected output in excess of the effort the public expects from him.

$$R^B(a) = E(E(\theta/y)) = E(y - a^e)$$

Since the derivative of expected outcome with respect to effort is unity, the FOC from maximizing his utility (2) with respect to  $a$  is:

$$1 = C_a(a^B)$$

The B's participation constraint is:

$$E(R(y)) - C(a) \geq 0 \tag{13}$$

An optimal contract, written ex ante to extract first best effort from the B, differs from the career concern model of behaviour, in that it would just satisfy the B's participation constraint at  $\bar{\theta}$ , and in (14) pay him the amount that would generate the first best level of effort  $a^*$ .

$$E(R(y)) = C(a^*) \tag{14}$$

But these optimal contracts are difficult to specify in all circumstances. The implicit reward under career concern is equivalent to paying the bureaucrat an incentive  $r$  based on expected outcome  $Ey$ , and it may leave the B with some rent, unlike in the optimal contract above that extracts all rent. But we assume that  $\bar{\theta} \geq C(a^*)$ , which ensures the

---

<sup>2</sup>India has three tiers of Government- Central, State and Local. One motive for the Central Government to pass the 73<sup>rd</sup> and 74<sup>th</sup> constitutional amendments empowering local bodies was in order to enable direct monetary transfers to local bodies, bypassing state governments that could be corrupt, or belong to different parties.

<sup>3</sup> Using career concerns to motivate the B. But this will not work if his career depends on the politician, since then his objective function, maximization and effort will be identical to that of the politician. The local politician would be the relevant one for a local bureaucrat. But the re-election objective of the state politician would be similar to that of the local politician; the state politician also has to win in the local constituency.



participation constraint is satisfied. A strict equality would leave him some rent, but in simple cases career concern is equivalent to an optimal contract. Consider his optimization (16) if he is paid an incentive (15):

$$R^B(a) = r E y \quad (15)$$

$$\underset{a}{Max} r E y - C(a) \quad (16)$$

If  $r$  normalized to unity, or the B is given the excess of output over costs as incentive, the outcome is  $1 = C_a(a^*)$ , which is the same as the optimal contract. Next we turn to writing such an incentive contract for the B, in our two-output case, and comparing the effort induced with that of the P.

### III. Comparing the bureaucrat and the politician

Considering the two outputs, the reward to the B dependent on assessment of ability conditional on performance  $y = y_1 + y_2$ , becomes:

$$R^B(a) = E(E(\theta|y)) = E(y - 2a_1^e - a_2^e) = E(2\theta + 2a_1 - 2a_1^e + a_2 - a_2^e) \quad (17)$$

The first order conditions (FOCs) are computed with respect to effort,  $a$ , taking as given expected effort  $a^e$ . The objective function (2) now becomes (18), which B maximizes with respect to  $a_1$  and  $a_2$ .

$$E(2\theta + 2a_1 - 2a_1^e + a_2 - a_2^e) - C_1(a_1) - D(a_1)C_2(a_2) \quad (18)$$

Next the equilibrium requirement  $a = a^e$  is imposed for each of  $y_1$  and  $y_2$ . Equilibrium efforts obtained are the FOCs (19) and (20). In this case the B puts double effort for producing  $y_1$  compared to  $y_2$ .

$$2 = C_{1a_1}(a_1^B) \quad (19)$$

$$1 = C_{2a_2}(a_2^B); \quad D(a_1^B) = 1 \quad (20)$$

The result is intuitive since he can produce more  $y_1$  for the same effort compared to  $y_2$ , thus getting more reward by increasing  $a_1$  relative to  $a_2$ .

Now consider the politician's maximization when we distinguish between the two tasks,  $y_1$  and  $y_2$ . The FOC (23), attained through a process of reasoning similar to that earlier for

(7) shows that he will put equal effort on the two tasks, working harder than when he had only one task.

$$R^p(a) = \Pr(y \geq W) = 1 - \Pr(2\theta \leq W - 2a_1 + a_2) \quad (21)$$

$$W = 2\bar{\theta} + 2a_1^e + a_2^e \quad (22)$$

$$n(2\bar{\theta}) = \frac{2}{\sigma_\theta \sqrt{2\pi}} = C_{1a_1}(a^p) = C_{2a_2}(a_2^p); \quad D(a_1^p) = 1 \quad (23)$$

The difference in results from the bureaucrat arises because both  $a_1$  and  $a_2$  affect the politician's threshold.

If however, election occurs before  $y_2$  is observed, so that P's chances of re-election depend only on  $y_1$ , P will put zero effort on  $y_2$ . This is likely if  $y_2$  is a longer-term output. Since rational voters expect all politicians to neglect  $y_2$ ,  $W = \bar{\theta} + a_1^e$ , and the FOC valid for this case, obtained by maximizing (24), is (25). If  $a_2$  gives fruits only after elections  $a_2^p = 0$ ; the politician puts zero effort on the second task.

$$R^p(a) = \Pr(y_1 \geq W) = 1 - \Pr(\theta \leq W - a_1^e) \quad (24)$$

$$n(\bar{\theta}) = \frac{1}{\sigma_\theta \sqrt{2\pi}} = C_{1a_1}(a_1^p) \quad (25)$$

If some fraction  $\alpha$  of  $y_2$  is observed prior to the election, the equilibrium  $a_2^p$  is given implicitly by FOC (26). It is positive but less than  $a_1^p$ :

$$n(2\bar{\theta}) = \frac{\alpha}{\sigma_\theta \sqrt{2\pi}} = C_{2a_2}(a_2^p); \quad D(a_1^p) = 1 \quad (26)$$

If the major benefits of the second task (for example, creation of durable assets) are observed over a longer time horizon, P maybe expected to neglect them.

These results are summarized below:

**Result 2:** *When there are two linked tasks, one requiring higher effort, a bureaucrat motivated by career concerns will devote less effort to this task. A politician motivated by*

*re-election will, however, devote equal effort to the two tasks and will work harder given more tasks. But if the outcome of one of the tasks is observed only after elections, he will devote low or zero effort to this task. Thus both the bureaucrat and the politician would neglect the creation of durable assets.*

Result 2 helps understand the relative neglect of durable assets and focus on employment in the MGNREGS.

If the distribution of  $y$  matters for re-election, but the politician needs only to please a majority for re-election, how would he distribute  $y$  among three sets of voters?

$$y = \theta + a = c_1 + c_2 + c_3 \quad (27)$$

If he gave  $y/2$  to two voters and zero to the third, his reward would be:

$$R^p(a) = \Pr(y/2 \geq W) \quad (28)$$

Voters expect the incumbent to follow the above policy if re-elected but the opponent if elected follows an unknown redistribution so each voter expects one-third. Then the threshold the politician has to cross is<sup>4</sup>:

$$W = 1/3(\bar{\theta} + a^e) \quad (29)$$

The maximization yields the FOC as usual, but the FOC now implies less equilibrium effort from the politician.

$$\text{Max}_a \Pr\left(y/2 \geq \frac{1}{3}(\bar{\theta} + a^e)\right) - C(a) \quad (30)$$

$$n\left(\frac{2\bar{\theta} - a^p}{3}\right) = C_a(a^p) \quad (31)$$

For example, if the poor eligible for employment insurance form about one-third of the population, given his short-term perspective, the politician would produce  $y_1$  and one-

---

<sup>4</sup> If  $W = \left(\frac{\bar{\theta} + a^e}{2}\right)$  then there is no change in the earlier result. FOC (7) continues to be valid.

third of  $y_2$ , and put in less effort compared to (7). He may be able to form a minimal coalition supporting his office

**Result 3:** *If a coalition is possible, the politician will redistribute only to the proportion of voters necessary for re-election, and put in less equilibrium effort as a consequence.*

Since the politician would tend to neglect the second task, can the bureaucrat be made to attend to this despite Result 2?

*Incentive on the second task:* It is possible to assign weights on the bureaucrat's tasks as in (32):

$$y = \delta y_1 + (1 - \delta) y_2 \quad (32)$$

The B's rewards now are:

$$R^B(a) = E(E(\theta|y)) = E(2\theta + 2\delta a_1 + (1 - \delta)a_2 - 2\delta a_1^e - (1 - \delta)a_2^e) \quad (33)$$

If the weights are set so that  $\delta = 0$ , the B will focus on his mandate, since that signals his ability or gives him his incentive payment<sup>5</sup>. The incentive can be based on  $y_2$  observed. As usual, we do the maximization, taking expectations as given, and then impose the equilibrium requirement that expected effort equals actual effort, to get the FOC (34). In this case since  $a_1$  is necessary for  $y_2$ ,  $y_1$  is also accomplished, with the B allocating equal effort to both.

$$1 = C_{1a_1}(a_1^B) = C_{2a_2}(a_2^B); \quad D(a_1^B) = 1 \quad (34)$$

Therefore employment producing durable assets lends itself to a simple and effective incentive structure.

*Uncertainty in skill:* Introducing imperfect monitoring captured as before by a noise parameter  $\varepsilon$  with  $\varepsilon \sim N(0, \sigma_\varepsilon^2)$ , and a large variation in ability of the B, the reward for the B becomes:

---

<sup>5</sup> A well-focused target works. The managing director of an oil public sector undertaking remarked in a private conversation that corporate governance had improved although the board continued to be friendly and non-threatening, simply because they now had to give targets in writing.

$$R^B(a) = E(E(\theta|y)) = \bar{\theta} + \beta E(\theta + \varepsilon + a - a^e - \bar{\theta}) \quad (35)$$

Where  $\beta$  is the signal to noise ratio, which now discounts the perception of ability.

$$\beta = \sigma_\theta^2 / (\sigma_\theta^2 + \sigma_\varepsilon^2) < 1 \quad (36)$$

In this signal extraction problem, a high variance of  $\theta$ , increases the signal to noise ratio. If  $\beta$  is higher, so is the equilibrium effort of the B. The latter is given by the FOC (37). The B works harder since his reward is a linear function of expected ability, conditional on performance. He fully internalizes the effect of higher expected ability on his reward. If the B is risk neutral (as we have assumed) the reward function is linear. If he is risk averse, so that his marginal utility is convex, he would put in even more effort if  $\theta$  is more uncertain.

$$\beta = C_a(a^B) \quad (37)$$

Now consider the local politician:

Since  $C_a(a^{P_L}) = 1 / (\sqrt{\sigma_\theta^2 + \sigma_\varepsilon^2} \sqrt{2\pi})$

While  $C_a(a^B) = \sigma_\theta^2 / (\sigma_\theta^2 + \sigma_\varepsilon^2)$

The denominator<sup>6</sup> of the first term has a square root of  $\sigma_\varepsilon^2$ , so for large  $\sigma_\varepsilon^2$ :

$$C_a(a^{P_L}) > C_a(a^B)$$

Consider  $\hat{\sigma}_\varepsilon^2$  such that the two are equal. Then for:

$$\sigma_\varepsilon^2 < \hat{\sigma}_\varepsilon^2, C_a(a^{P_L}) < C_a(a^B) \text{ or } a^{P_L} < a^B \quad (38)$$

Since  $\sigma_\varepsilon^2$  is low for the local politician he would put in less effort compared to the local B especially if the latter's variance in skill is high.

**Result 4:** *If inputs in a second task build on inputs in a first task as in the MGNREGS, putting the former as the bureaucrat's objective will ensure the completion of both, since effort must be allocated to the first task in order to achieve the second task. If the second task requires more skill, and there is high variation in the distribution of skill, the*

---

<sup>6</sup> See Kojima (2008) for a formal proof.

*bureaucrat will work harder. Moreover, the local bureaucrat will work harder than the local politician.*

#### **IV. Mitigating leakages**

We next consider how corruption, or siphoning off payments meant for the poor can be reduced. This is a pervasive feature of government welfare schemes, especially at the local level, where local satraps may dominate. Corruption often occurs in a situation where the B shares the P's objective function (and shares in payoffs he arranges for the P). Giving the B an independent career objective will lower this type of leakage, since ability own incentives will become more important for him.

The P continues to be concerned about re-election, so he extracts  $e$  from government schemes since  $e$  (more funds available) increases chances of re-election through the function  $H$ , which increases at a decreasing rate with  $e$ :

$$H(0) = 0, H_e > 0, H_{ee} < 0$$

Transaction costs in corrupt schemes are  $0 < \emptyset < 1$ , so that what the P nets from  $e$  is  $(1 - \emptyset)e$ . The probability of getting caught is given by  $q(e)$ . This function is convex, increasing at an increasing rate with  $e$  since the chances of getting caught are higher for larger extraction.

$$q(0) = 0, q_e > 0, q_{ee} > 0$$

The timing is: First, given the politician's control over a welfare task, and the functions  $q$  and  $H$ , he decides extraction and effort. Second nature chooses the realization of  $\theta$ , and finally rewards are obtained.  $H$  reduces voters' reservation utility or threshold  $W$ , since more funds increase the incumbent's chance of winning elections, so that  $W = \bar{\theta} + a^e - H(e)$ . Since other politicians are rationally expected to be as corrupt,  $q$  does not enter  $W$ , but if the politician is caught output falls, so  $y = \theta + a - q(e)$ .

Therefore P's objective function is:

$$\text{Max}_{a,e} R(y) + e(1-\phi) - C(a) \quad (39)$$

$$R(y) = \Pr(y \geq W - a + q(e)) \quad (40)$$

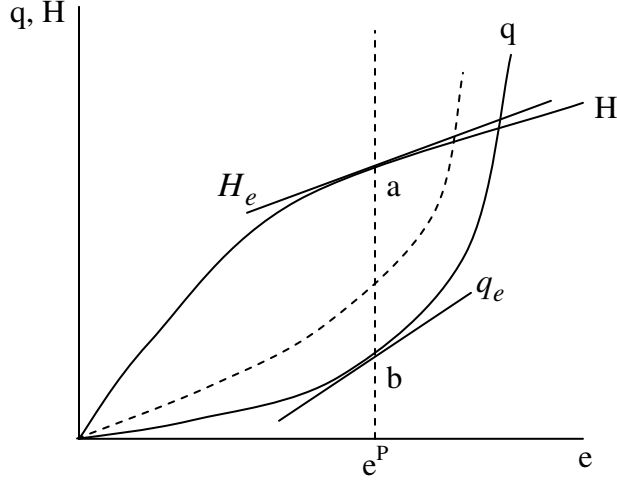


Figure 1: Equilibrium levels of extraction by the politician

And the FOC with reference to  $a$  is:

$$n(\bar{\theta} - H(e) + q(e)) = C(a^P) \quad (41)$$

With reference to  $e$  it is:

$$n(\bar{\theta} - H(e^P) + q(e^P))(H_e(e^P) - q(e^P)) + (1-\phi) = 0 \quad (42)$$

This can be written as:

$$\frac{1-\phi}{n(\bar{\theta} - H(e^P) + q(e^P))} = q_e(e^P) - H_e(e^P) \quad (43)$$

Figure 1 shows the equilibrium level of extraction  $e^P$  as a function of the slopes of the  $q$  and  $H$  functions. Since  $q$  becomes steeper and  $H$  flatter,  $e^P$  is determined at the unique point where the slope of  $q$  exceeds that of  $H$  by the LHS of (43). The gap falls with  $\phi$ ,  $\bar{\theta}$ ,  $q$  and rises with  $H$ .

The figure demonstrates that making the  $q$  function steeper (as in the dashed function), or making the concave  $H$  function flatter, lowers  $e^P$ . The LHS of (43), which is  $ab$  in the figure, is reduced, also lowering  $e^P$ , if transaction costs  $\emptyset$  rise,  $H$  shifts down or  $q$  shifts up. Transparency in muster rolls, good account keeping, and social audits by the local community will change the  $q$  function as required, and raise  $\emptyset$ ; there will be a high probability of being caught even for small extraction, and the transaction costs of siphoning off funds will rise. If election-funding reform makes adequate legal money available for elections the productivity of  $e$  in financing elections will fall; a rise in the value of performance, reputation, and probity can all change the  $H$  function. As norms become stricter,  $e$  gets driven to words zero. The MNREGA has built in features that will change the  $q$  function, and if the scheme is successful, the  $H$  function should also be affected over time.

**Result 5:** *Giving the bureaucrat an objective function independent of the politician will reduce corruption in the bureaucracy. Making illegal funds less productive in financing elections, increasing the transaction costs of siphoning off funds, and the probability of being caught and making it more sensitive to siphoning, will reduce political corruption.*

## V. Financing

A decision has to be made on the distribution of  $f$  between  $f_1$  and  $f_2$ , based on the tradeoff between current and future payoffs, or between quantity and quality. Let  $y_1$  be current employment while  $y_2$  is output of durable assets. Consider 2 periods  $t$  and  $t+1$ ,  $f_{2t}$  does not contribute to employment in period  $t$ , but by raising productivity in period 2 it makes it possible to employ more in that period, as the equation below demonstrates:

$$y_{1t+1} = \theta + a_{t+1}f_{1t+1} + f_{2t}$$

Figure 2 shows that employment  $y_1$  remains constant over time when  $f_2 = 0$ , but rises over time as  $f_2$  accumulates when some of  $f$  is invested in durable assets. Under the latter strategy  $y_1$  is initially lower but by time  $T$  equals the fixed level of  $y_1$  achieved with zero durable assets and then exceeds it.  $T$  is shorter if  $f_2$  is smaller and more productive so that



$y_1$  with positive  $f_2$  rises faster (the line A  $y_1$  in Figure 2 has a smaller intercept and is steeper).

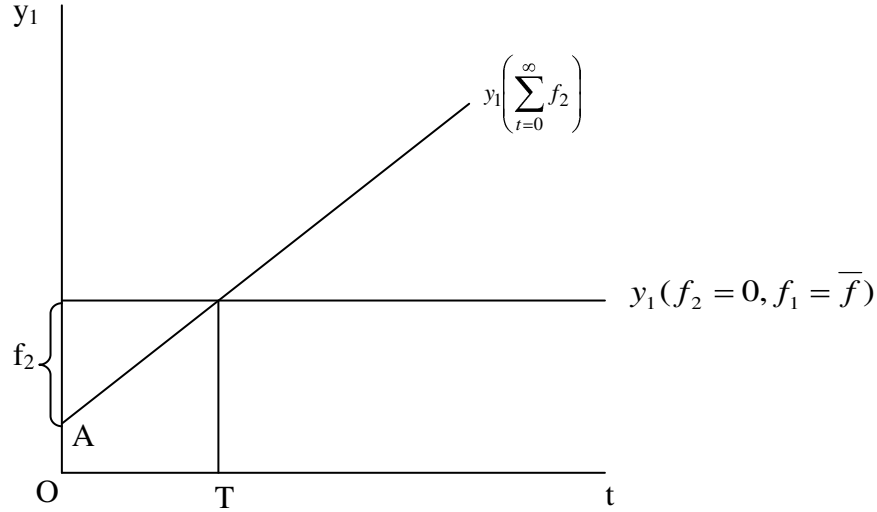


Figure 2: The costs and rewards of durable assets

It is possible to derive this share optimally. Consider the case when utility depends only on  $f_1$  (this could be because poor voters form a very large proportion of the total). Then the necessary condition for efficiency in employment creation is the loss in utility from the decrease in employment in time  $t$  must be equal to the discounted value of the gain in utility from the rise in employment in time  $t+1$  due to higher  $f_2$ . That is, the marginal rate of substitution in employment over time must equal the marginal rate of transformation in the creation of employment. The rise in employment in period  $t+1$  equals the marginal productivity of  $f_2$ . The employment gain rises with the productivity of durable assets. Thus the optimal level of  $f_2$  is higher if there is greater willingness to sacrifice employment today for more employment tomorrow, or the elasticity of substitution is high, the marginal productivity of  $f_2$  is high, and the rate of discount is low. Although  $f > f_1$ , total financing requirement as a percentage of GDP will fall over time if the durable assets created raise productivity and GDP.

## VI. Applications

The MGNREGA was passed in the Indian parliament in August 2005 giving the poor the legal right to 100 days of work in a year. Employment generated was to be used to build productive assets, but design features that could ensure the latter were missing, although special aspects of the scheme made these possible. If our first task is taken to be employment creation and the second using labour employed to create assets, our analysis can be applied to the MGNREGS.

The scheme is a form of insurance but also a conscious attempt to create a new institution with better incentive features. The latter include universal targeting to remove bureaucratic discretion in allocation, public muster rolls to boost transparency; manual work to achieve self-targeting; the legal right to help ensure delivery. There is no dole but if no work is provided, a reduced payment has to be made. A ban on use of contractors reduces corruption, and direct funding by the Central Government reduces leakages. A distinction between central and local politicians, with the latter as the implementing authority, increases transparency and local accountability as our Result 1 indicates. *Panchayats*<sup>7</sup> are responsible but are monitored by *gram sabhas* (village bodies) and social audits, encouraging local empowerment, awareness and ownership. Result 5 demonstrates the contribution of those features to reducing leakages and corruption. The problem is that local institutions are strong in only a few States; strengthening others will take time. The scheme worked better in States where *panchayats* were functional, and not dominated by one political party (Menon, 2006). Principals can more closely monitor local level politicians if local institutions such as the *gram sabha* are strengthened and accounting systems improved. There can be better coordination with other local development plans.

Result 2 and Result 3 show that bureaucrats will neglect tasks requiring relatively more effort. Politicians will also neglect them if they show results only in the long-term and if they can form smaller coalitions of voters benefiting from redistribution

---

<sup>7</sup> Since a *panchayat* is a village governing body a *panchayat* member would be a local politician in our model.

But Result 4 implies that giving the bureaucrat incentives based on the production and quality of durable assets, and clarifying his duties to be in coordination and technical support will increase the chance of high quality rural infrastructure being built. It will also compensate for the technical weakness of *panchayats*. If their incentives were focused on the production of high quality durable assets, bureaucrats would compensate for the lack of skills at local levels through training and use of consultants. Normally, since a bureaucrat has to accomplish multiple tasks it is not possible to give him a precise objective. But the special feature of the MGNREGS, where employment is an input in the production of durable goods, makes this possible. Putting too much weight on the *panchayats* alone, that is, on the local politicians, leads to an overemphasis on employment. This happened in the first phase of the MGNREGS. Moreover, under greater monitoring as is possible at the village level, the local bureaucrat would put in more effort compared to the local politician.

Result 4 also shows bureaucrats will work harder to establish their ability when dispersion in ability is high. In developing countries variation in officials' ability is high, and low incomes make them risk averse, so that an incentive conditional on expected ability would induce more effort. Since variation in ability required to create high quality assets is even higher, putting this as the B's mandate, will induce even higher effort. It would encourage healthy competition between B's to demonstrate their skills, and mitigate the decay in abilities that has come from pleasing politicians rather than doing a good job.

Apart from creating incentives for the village level official, some reorganization of the bureaucracy is required; a bureaucrat as a CEO responsible for a cluster of villages can bring in consultants and coordinate with the district planning council mooted in the approach to the 11<sup>th</sup> Five Year Plan (GOI, 2006).

## **VII. Conclusion**

Institutions as rules of interaction create incentives that affect outcomes. North (2005, pp. 55-58) argues that political markets are inherently imperfect because of complexity, high

cost of and low returns to information acquisition, and multiple principal agent problems between the voter and the legislator, the latter and the executive. Special interests tend to capture politics and push their advantage at the expense of the general interest. Then how does change occur? Are institutions with poor incentive structures locked in?

But democracy also encourages an open-ended process of discovery that has an advantage in a world with fundamental uncertainty and change. Political preferences and opinions may be incorrect but they are contestable; interactive learning occurs continuously (Wohlemuth, 2003). The large sphere independent of majority control plays a major role in this (Hayek, 1960).

The political-bureaucratic nexus in India after independence perverted incentives, but more openness, greater awareness of the electorate, NGO and judicial activism, and political competition is forcing change. As the proportion of poor shrink politicians cannot win elections based on consumption subsidies for that shrinking minority, they have to provide more public goods that have wider benefits. There is an opportunity to put in better, context-specific, incentive structures.

Democracy, together with the greater openness, leads to an active internal debate that makes improvements in governance possible. The MGNREGS is a consequence of such debate and is part of institutional change that is reversing policy mistakes. Thus the Platteau and Hayami (1998) conjecture on the persistence of African underdevelopment does not apply. If incentives arise from structural factors such as natural or technological handicaps or traditional social norms, not from policy mistakes, they are difficult to reverse. But if policy mistakes set up dysfunctional institutions, like the pervasive controls in the Indian case, vested interests created can only delay change, they cannot prevent it.

Ideas are part of this contestation and may help push the basic allocation of tasks between the politicians and the bureaucrat so the right incentives are set for players to compete at only those margins that raise productivity; for government to provide public goods but

limit the authority and discretion of government and of individual actors within government<sup>8</sup>.

Hart et. al. (1997) point out that while private provision will always have lower costs and more innovation than public, quality in private provision may be lower if quality requires higher costs. The public sector activity has an inherent advantage in providing quality. If the second good in this paper is understood as quality, the analysis shows how focusing on quality in the provision of public goods improves incentives. Then the public sector's quality advantage is further sharpened. This is compatible with multiple interlinked objectives if quality is defined and given as the bureaucrat's target for each objective. The definition of quality must include quick response.

The performance of emerging market governments in delivering local public services, especially those such as infrastructure, education and health that create physical and human capital has been poor. Quality is low because of low resources as well as poor incentive structures. If improving the latter enhances catch-up, it would increase resources with growth. It is crucial to find ways to improve delivery of public services, especially those with a longer-term impact on productivity. Our framework offers a suggestion towards this.

Assessments of the MGNREGS have tended to focus on the employment creation. Even where the latter has occurred, the creation of quality durable assets has not been at all satisfactory. The CAG (2007) report blames this on low levels of professional input. Bureaucratic inputs are missing in both quantity and quality. Even the staff provided for in the Act is sometimes not appointed<sup>9</sup>, and those that are there are demotivated. The incentive structures analyzed in this paper are urgently needed to improve its contribution to rural productivity.

---

<sup>8</sup> North (2005) puts these two as necessary factors for growth in any country.

<sup>9</sup> The NREGA provides for one *gram rozgar sewak* for each *gram panchayat*; five *gram panchayats* get one technical assistant and there is to be a full time program officer at the block level.

The MGNREGS has features that make it possible to give clear incentives to bureaucrats and make a clear division of tasks between local, central politicians and bureaucrats. The precise definition of the bureaucrat's role, and his motivation, will be important to make it difficult for state governments to control the *panchayats* through the bureaucrat, to reduce an overemphasis on rules and procedures, and to induce productive contributions from the executive. The MGNREGS also has features built in to reduce corruption and improve delivery. The focus on labour intensive assets in ensures the share of finances reserved for employment creation is large, thus doubly ensuring the employment objective does not suffer even with assets as the objective. Asset creation increases the financing requirement initially but can reduce it over time.

The revival of local self-government, improvement in productivity and rural public goods availability will give everyone an incentive to contribute and participate; the latter will not be limited, as it is at present, to the beneficiaries and the vultures of state welfare schemes. Village bodies can be expected to strengthen.

## References

Alesina, A. and G. Tabellini (2007). Bureaucrats or Politicians? Part I: A Single Policy Task, *American Economic Review*, Issue (1), Vol 97, 169-79, March.

Alesina, A. and Tabellini, G., (2008). Bureaucrats or politicians? Part II: Multiple policy tasks, *Journal of Public Economics*, Elsevier, vol. 92(3-4), pages 426-447, April.

CAG (Comptroller and Auditor General) (2007). Draft Performance Audit of Implementation of NREGA, Office of the Principal Director of Audit, *Economic and Service Ministries*, New Delhi.

Cooper, R. and A. John (1988). Coordinating Coordination Failures in Keynesian Models, *The Quarterly Journal of Economics*, Vol. CIII, No.3, August.

Dewatripont M. and J. Tirole (1999). Advocates, *Journal of Political Economy*, 107, 2-39.

GOI (Government of India) (2006). Towards faster and more inclusive growth: An Approach to the 11<sup>th</sup> Five Year Plan, *Planning Commission*.

Hart, Oliver, Andrei Shleifer, Robert Vishny (1997). The Proper Scope of Government: Theory and an Application to Prisons, *Quarterly Journal of Economics*, 112, 1127-61.

- Hayek, F.A. (1960). *The Constitution of Liberty*. Chicago: Chicago University Press
- Kojima, F. (2008). Bureaucrats or Politicians? Comment. *American Economic Review*, Issue (1), Vol 98, 561-562.
- Menon, S. (2006). Village 'dole' takes baby steps amid apathy, graft, and subsequent series of articles on MGNREGS, *Business Standard*, August 7.
- North, D.C. (2005). *Understanding the Process of Economic Change*, Princeton, N.J.: Princeton University Press.
- Persson, T., and G. Tabellini (2000). *Political Economics: Explaining Economic Policy*, Massachusetts: MIT Press.
- Platteau, J-P, and Y. Hayami (1998). Resource Endowments and Agricultural Development: Africa versus Asia, in Y. Hayami and M. Aoki (eds.) *The Institutional Foundation of East Asian Economic Development: Proceedings of the IEA Conference Held in Tokyo, Japan*, 357-410. New York: St. Martin's Press; IEA Conference volume No. 127.
- Tirole, J. (1994). The Internal Organization of Government, *Oxford Economic Papers*, 46, 1-29.
- Wohlgemuth, M. (2003). Democracy as an Evolutionary Method, in P. Pelican and G. Wegner, eds., *The Evolutionary Analysis of Economic Policy*, Northampton, Mass.: Edward Elgar.