ON THE ROLE OF MANAGERIAL LABOR MARKETS IN TRANSITION ECONOMIES

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On the Role of Managerial Labor Markets in Transition Economies.

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Abstract

The aim of the paper is to investigate possible improvement of public sector efficiency through its competition with a private sector for managerial services. We set up a dynamic adverse selection model with heterogeneity of managerial quality to show that if managerial careers are available only in the state sector, the government acts as a monopsonist, having a “holdup power” on managers. The introduction of a private sector, to the extent that it enhances career opportunities for public sector managers, gives the latter an outside option. By making this outside option available to managers, the government can make credible its commitment to stick to optimal incentive plans, thereby allowing efficiency to increase in the public sector itself.

ملخص

تهدف هذه الورقة إلى بحث امكانية رفع كفاءة القطاع العام عن طريق تنافسه مع القطاع الخاص حول الخدمات الإدارية. ونستخدم نموذج الانتقاء العكسي مع عدم تجانس النوعية الإدارية لتوسيح أنه إذا ما اقتصرت الوظائف الإدارية على قطاع الدولة، فإن الحكومة تلعب دور المحكر، بفرض سيطرتها الكاملة على المديرين. وعند دخول القطاع الخاص، إلى حد زيادة فرص الانتقاء بالوظائف المهنية في القطاع الخاص أمام مدير القطاع العام، فإن هذا الأمر من شأنه توفير فرص خارجية لمدير القطاع العام. ويجعل هذه الفرص الخارجية متاحة، فإن الحكومة يمكن أن تجعل التزاماتها جديرة بالثقة بحرصها على تقديم أفضل الجوانب، الأمر الذي من شأنه أن يرفع الكفاءة في القطاع العام نفسه.
I. INTRODUCTION

During the period from the mid-1950s to the late-1980s Middle East and North Africa (MENA) economies were characterized by a high degree of State intervention. This intervention involved state ownership of the means of production. The resulting dominance of State Owned Enterprises (SEO's) in productive and tradables sectors of MENA's countries is a well documented phenomena (see for instance Ayubi (1995)). As Stated by Handoussa (1994), centralised control over these enterprises deteriorates their performance. They are, in general, inefficient, overstaffed and expensively maintained in spite of low profitability and productivity. Defections at the managerial level are put forward as one of the most important causes to this respect. Such a situation is responsible for low performance in the economy as a whole.

At present the scope and degree of State intervention is questioned. Most economists in the MENA region are now advocating privatization of SOE's in order to enhance enterprises efficiency and to speed up economic developement. However, as reported by Ayubi (1995) in a detailed study of nine Arab countries, actual privatization remains rather limited and the states are not about to withdraw from the economy. It appears that while Turkey, Egypt, Tunisia and Morroco are probably succeedeing in privatization Syria, Iraq and Algeria may not.

Some economists, like Handoussa (1994), claimed that divestiture is necessary for efficiency only if the state is unable to break the link between the bureaucracy and SOE's. In other words public sector efficiency may be restored if the state can precomit itself not to intervene in the conduct of SOE's. The aim of the present paper is to contribute to this debate. It investigates possible improvement of public sector efficiency through its competition with a private sector for managerial services. This may shed some light on how, in the absence of privatization, manager mobility helps in achieving such an improvement. Because a necessary condition for manager's mobility is the existence of an effective managerial labor market, the paper proceeds by comparing situations with and without a managerial labor market.

The paper builds on previous work showing the importance of managerial labor markets in economies in transition (Roland and Sekkat (1991). We set up a dynamic adverse selection model with heterogeneity of managerial quality. The general point we make is that if managerial careers are available only in the state sector, the government acts as a monopsonist, having a "holdup power" on managers. If there is heterogeneity in managerial skills and if the latter is private information, the government cannot credibly precommit to efficiency-inducing incentive schemes, thereby leading to the well known ratchet effect.

The introduction of a private sector, to the extent that it enhances career opportunities for public sector managers, gives the latter an outside option. By making this outside option available to managers, the government can make credible its commitment to stick to optimal incentive plans, thereby allowing efficiency to increase in the public sector itself. The government thus imposes on itself the discipline of competition with the private sector for the services of good managers in order to create commitment. The existence of a private sector, big enough for this competition to be able to take place, can thus be seen as a commitment device for public sector incentive schemes.
The rest of the paper is organized as follows. Section 2 presents the model. Section 3 analyses the ratchet effect problem. Section 4 examines the impact of competition between public and private sectors for good managers services, on public sector performance. Section 5 concludes.

2. THE MODEL.

We start the analysis with a socialist economy where there is no private sector. There are \( N \) managers. Each manager may be either a high productivity type ("good manager") characterized by the parameter \( \theta \) or a low productivity type ("bad manager") characterized by the parameter \( \bar{\theta} \), with \( \theta < \bar{\theta} \). Good managers are present in proportion \( p \) and bad managers in proportion \( (1-p) \). These proportions are known to the government but individual type is private information. Managers can choose between two unobservable effort levels: high effort, yielding disutility \( \bar{a} \), and low effort, \( a \) with \( a < \bar{a} \). It seems a priori unreasonable to model an economy with only 2 types of managers, and one can easily argue that a continuum of types would be more realistic. However, dynamic principal-agent problems quickly become difficult with a continuum (see Laffont-Tirole, 1988), and the model presented here has the advantage of simplicity and clear-cut results.

The government can only observe net public sector output \( y \) which is a function of type and effort: \( y = y(q,a) \). Net output is defined here as value added after wage payments, depreciation, etc. It is equal to profits plus managerial salaries. The following assumptions are made on output:

\[
y(\bar{\theta}, \bar{a}) > y(\theta, a) = y(\theta, \bar{a}) > \bar{a} > a > y(\theta, a)
\]  

There are thus three possible output levels. The highest, which we will call \( y_1 \), can only be achieved by the good manager with high effort. The intermediate level, \( y_2 \), can be achieved by both types but under different conditions of effort, and the lowest level, \( y_3 \), occurs when the bad manager exerts low effort. As shown by the right hand inequalities, it is assumed that high effort from the bad manager is profitable to the government while low effort is not.

When \( y_1 \) or \( y_3 \) is observed, the government can immediately infer the agent's type whereas when \( y_2 \) is observed, the government may not be able to tell whether the manager is good or bad. Hence, even though \( y_3 \) is unprofitable, this output level may yield intertemporal benefits since it provides a way to separate the good from the bad managers.

In a one-period framework under asymmetric information, an incentive scheme devised by the government will be a triplet:

\[
h = \{h_1 = h(y_1), h_2 = h(y_2), h_3 = h(y_3)\}.
\]

The individual agents' choice of effort will depend on payments minus effort:

\[
\text{Max } h(y) - a.
\]

Total output in the economy will thus be:\footnote{In the subsequent analysis, \( N \) is normalized away and the analysis conducted in terms of proportions.}
where \( y^\theta(\bar{\theta}) \) and \( y^\theta(\bar{\theta}) \) are the output levels chosen by each type depending on the incentive scheme \( h \) set by the government.

The choice of an incentive scheme will be determined by the maximization of expected profits taking into account managers' choice of effort level:

\[
\text{Max}_h \pi = p[y^\theta(\bar{\theta}) - h(y^\theta(\bar{\theta}))] + (1-p)[y^\theta(\bar{\theta}) - h(y^\theta(\bar{\theta}))].
\]

We also assume that the government is subject to a full employment constraint and is not willing to cease operation of loos-making firms or to encourage bad managers to exit. This assumption seems natural under a socialist economy.

In order to define the full information allocative efficiency the following assumption is made:

\[
y_i - y_{i+1} > \Delta a = \bar{a} - \bar{a}
\] \hspace{1cm} (2)

Given (1) and (2), the full information optimal incentive scheme could consist in having \( \bar{\theta} \) and \( \theta \) both exerting high effort and getting exactly compensated for their effort. Under this full information incentive scheme, the government's payoff, \( \Pi_F \), is then:

\[
\Pi_F = py_1 + (1-p)y_2 - \bar{a}
\]

3. THE RATCHET EFFECT PROBLEM.

We are interested in intertemporal incentive schemes maximizing expected profit for the government in the absence of commitment. As usual, in the absence of discounting, the one-period framework allows us to understand the commitment solution. Given the assumptions made, there is only a choice between two incentive schemes: scheme A, inducing \( \bar{\theta} \) to choose \( \bar{a} \) and the \( \theta \) to choose \( a \), and scheme B inducing both agents to choose \( \bar{a} \).

\[
h(A) = \{ h_1 = \bar{a}, h_2 = a, h_3 = a \}
\]

\[
h(B) = \{ h_1 = 2\bar{a} - a, h_2 = \bar{a}, h_3 = a \}
\]

Scheme B gives the same output level as the full information optimum but is more costly in terms of incentive payments since the good managers are paid more in order to separate them from the bad managers. It is easily seen that the government prefers scheme B to scheme A if and only if:

\[
p < p^* = 1 - \frac{\Delta a}{y_2 - y_3}
\] \hspace{1cm} (3)
The choice between these two schemes reflects the usual adverse selection trade-off between the degree of allocative efficiency and the cost of obtaining it. If the proportion of good managers were too high in the economy, it is better to renounce obtaining higher effort from the bad managers in order to eliminate the ensuing rents going to good managers.

Let us assume that (3) is satisfied. The government's payoff is then:

\[ \Pi_B = p(y_1 - (2\bar{a} - a)) + (1 - p)(y_2 - a)) = \Pi_F - p(\bar{a} - a) \]

The loss, compared to the full information solution, is due to the fact that the \( \bar{\Theta} \) now enjoy a rent of \( (\bar{a} - a) \). If the government could commit to scheme B, then, in a two-period framework, the \( \bar{\Theta} \) would enjoy a rent of \( 2\Delta a \).

In the absence of government commitment, scheme B is not time consistent. Indeed, if applied in the first period, the government would have full information over the managers' types in the beginning of period 2. It would thus reoptimize and apply the optimal full information scheme in the second period. Knowing this, the good managers would prefer to pool with the bad managers in the first period by choosing \( a \), thereby enjoying a rent of \( (\bar{a} - a) \). With a pooling outcome in the first period, both types producing \( y_2 \), no information would be revealed, and scheme B, the one-period static optimum, would then be applied in the second period. The \( \bar{\Theta} \) would then get a two-period rent of \( 2\Delta a \). This outcome would however be clearly suboptimal for the government. Indeed, (2) implies that \( y_1 - y_2 > \Delta a \). It thus pays the government to pay the \( \bar{\Theta} \) an additional \( \Delta a \) to have them produce \( y_1 \) instead of \( y_2 \). The optimum in the absence of commitment is thus to pay \( 2\Delta a + \bar{a} \) for \( y_1 \), giving thus to the \( \bar{\Theta} \) a first period rent of \( 2\Delta a \) to have them separate, and then to apply the full information scheme in the second period. The government's payoff for this separating intertemporal scheme is:

\[ \Pi_S = p(y_1 - (2\Delta a + \bar{a})) + (1 - p)(y_2 - \bar{a}) + p(y_1 - \bar{a}) + (1 - p)(y_2 - \bar{a}) \]

Here also, one has the usual ratchet result that, in the absence of government precommitment, a higher first period cost, compared to the commitment solution, is necessary to obtain separation. Separation is thus, in this model, always preferrable to pooling. Separation is however not necessarily possible. In our model, managerial incentive bonuses must be paid out of the net product and we assume no external borrowing. Government profit is thus constrained to be non-negative period by period and this may prevent the separation outcome. Call

\[
\begin{align*}
(y_1 - y_2) - \Delta a &= d_1 \geq 0 \\
(y_2 - y_3) - \Delta a &= d_2 \geq 0 \\
y_3 - \bar{a} &= d_3 \leq 0
\end{align*}
\]

The following proposition can then be established.
Proposition 1:

Given conditions (1) and (2) and if (i) $d_1 + d_2 + d_3 < \Delta a$ and (ii) $-\delta_3 > \delta_2 + \frac{\delta_2(\delta_1 - \Delta a)}{\delta_1 + \delta_2 + 2\Delta a}$, then there exists an interval $[p, \bar{p}]$ of positive measure included in $[0, 1]$, where $p = \frac{\delta_2 + \delta_3}{\Delta a - \delta_1}$ and $\bar{p} = \frac{\delta_2}{\delta_1 + \delta_2 + 2\Delta a}$, for which pooling, followed by scheme B, is the optimal government policy and the unique perfect bayesian equilibrium.

Proof:

We first show that $[p, \bar{p}]$ is included in $[0, 1]$ and is not null. (i) and (1) imply that $0 < p < 1$. (1) implies $0 < p < 1$. (ii) implies that $p < \bar{p}$. The interval $[p, \bar{p}]$ thus exists. To show that pooling followed by scheme B is optimal, we must show two things: first, that period one separation, at a high effort level, which is always preferable, given our assumptions, is not possible; second, that, cheaper first period separation schemes do not perform better. If $p > p$, then $p(\Delta a - d_1) > d_2 + d_3$. Rewriting this inequality, we have $p(y_1 - y_2 - 2\Delta a) + (y_2 - \bar{a}) < 0$. By adding and subtracting $\bar{a}$ in the first left-hand expression, we obtain after rearrangement $p(y_1 - (3\bar{a} - 2a)) + (1 - p)(y_2 - \bar{a}) < 0$. In other words, the first period profit from the high effort separating scheme is negative, which means, given our assumptions, that this scheme is not feasible.

Having both types perform high effort is however not the only way of obtaining separation. Applying scheme A in the first period provides information over types and allows to apply the full information incentive scheme in the second period. Scheme A has thus potentially more appeal in an intertemporal framework than in a one-period framework, and it will be optimal on a greater interval than $[p^*, 1]$. Scheme A may be all the more appealing if the more expensive form of separation is not possible. While, having the $\Phi$ perform low effort is not profitable for the government, in the one-period framework this scheme becomes profitable, in the two-period framework. Indeed it pays the government to have the bad managers making losses in the first period, because in the second period, the full information incentive scheme can be applied. However, pooling followed by scheme B is preferrable to scheme A followed by the full information given the particular full employment constraint. To see that this is true note that the payoffs of the two solutions are respectively:

\[ p(y_1 - \bar{a}) + (1 - p)(y_3 - \bar{a}) + p(y_1 - \bar{a}) + (1 - p)(y_2 - \bar{a}) \]

and

\[ p(y_2 - \bar{a}) + (1 - p)(y_2 - \bar{a}) + p(y_1 - (2\bar{a} - a)) + (1 - p)(y_2 - \bar{a}). \]

After some manipulations, pooling followed by scheme B appears to be preferable iff $p < \frac{\delta_2}{\delta_1 + \delta_2 + 2\Delta a}$. Pooling followed by scheme B is thus optimal on the interval $[p, \bar{p}]$. It is also the unique perfect bayesian equilibrium. Scheme B is the best incentive scheme on the interval given that no information was revealed during the first period and the managers' choice of effort.
is optimal. The incentive scheme proposed is the unique optimum on that interval, and the agent's choice of effort is optimal given that scheme B is the unique continuation equilibrium. QED

Condition (i) is a bound on the net surplus. Condition (ii) is a lower bound on the loss to the government of having the bad managers work for a low effort level. The proposition is not self-evident to the extent that, in a dynamic framework without commitment, scheme A has potentially some appeal since it allows for separation.

Having established proposition 1, we will assume that the interval \([p, \bar{p}]\) characterizes the socialist economy before transition. This seems reasonable to us as pooling can be seen as a plausible characterization of managers in that economy where the ratchet effect was a pervasive phenomenon, leading to managerial slack. Proposition 1 tells us however more than that. It says something about the efficiency limits of profit-oriented government activity in a Socialist economy i.e. the so-called market socialism. In the early years of central planning, the objective of efficiency was generally sacrificed in order to reach the ambitious quantity targets of the plan. In subsequent periods, the drive towards efficiency motivated proposals for economic reform. The most radical idea of reform was that of market socialism, i.e. maintaining the public ownership of the means of production but allowing the market to allocate resources. The result of proposition 1 tells us that when the state is the sole employer of managers and when it cannot credibly precommit to fixed incentive schemes, then there are conditions under which it will not be possible to eliminate managerial slack, even when profit-maximization is the objective. The fact that managerial careers are limited to one choice, here in the public sector, is crucial for that result. Indeed, it allows the state to exercise a "hold-up power" on managers.

4. THE PRIVATE SECTOR AS A COMMITMENT DEVICE

Assume now that, after period 1, managers have the opportunity of going in the private sector and let us see the consequence. Private sector variables are indicated by \(\ast\). In this section we assume that there already exists a competitive private sector of size \(N^\ast\). The assumption about \(N^\ast\) can be seen as considering the entry decision of monopolists, on top of a competitive fringe.

The following assumptions are made. The technology is non substitutable. Each monopolist must incur an investment cost \(rK\), where \(K\) is the fixed sunk capital and \(r\) its rental price. The capital is installed before a manager is hired. One and only one manager is needed per new capacity. All capacities are identical and production is a function \(f(q, a, N^\ast)\) of talent, effort and of the size of the existing private sector. Moreover given \(N^\ast\) the production function satisfies the following conditions:

\[
\begin{align*}
    f(\bar{\theta}, \bar{a}, N^\ast) &> f(\bar{\theta}, a, N^\ast) > f(\bar{\theta}, \bar{a}, N^\ast) > \bar{a} > a > f(\theta, a, N^\ast), \\
    f(\bar{\theta}, \bar{a}, N^\ast) - f(\bar{\theta}, a, N^\ast) &> y_1 - y_2, \\
    \frac{\partial f}{\partial N^\ast} &\geq 0.
\end{align*}
\]
The first set of conditions (4) imply that, compared to the public sector, private sector technology is relatively much more sensitive to talent than to effort. Bad managers will not make a good job, even under high effort. For good managers however, a higher effort yields a higher increment in output than in the public sector. More important, a form of increasing economies to scale is assumed, with private monopolistic output increasing with the size of the private sector. In Roland and Verdier (1991), possible reasons for this externality are discussed. In this section we assume however here that this externality relates only to the size of the existing competitive sector, not to the size of the private sector after entry. This is essentially a simplifying assumption. One can think of it in the following way. The existing private sector provides a network of business relationships that reduces transactions and matching costs and facilitates knowledge spillovers. It takes time however before the new entrants bring their contribution and improve this network.

As managerial type is private information, capitalists have to decide on a wage offer. In the spirit of Holmstrom (1982), some inference on the managers' type can, however, be made on the basis of the first period observations. We assume the following timing. First, capitalists decide on the possibility of entry, on the basis of expected profits when hiring a manager. Expected profits are evaluated on the basis of observed managerial performance. Wage contracts are offered to managers on the basis of output. However output performance in the private sector can be monitored only after hiring. The second period government incentive scheme announcements is made by the government and then entry occurs. Managers are free to leave or to stay in the public sector.

Proposition 2 easily establishes conditions under which entry occurs.

**Proposition 2:**

Given (4) and \( p \in [p, \bar{p}] \),

if \( \forall N^*, rK > p[f(\theta, \bar{\alpha}, N^*) - f(\bar{\theta}, \bar{\alpha}, N^*) - \Delta \alpha] + f(\bar{\theta}, \bar{\alpha}, N^*) - \bar{\alpha} \)

then, there will be no private entry if pooling is observed in the first period.

**Proof:**

Note that, from 4, \( f(\theta, \bar{\alpha}, N^*) - f(\bar{\theta}, \bar{\alpha}, N^*) > y_1 - y_2 \) and \( f(\bar{\theta}, \bar{\alpha}, N^*) > \bar{\alpha} > \alpha > f(\theta, \bar{\alpha}, N^*) \) imply that in the private sector it is always profitable to exert higher effort from both type of managers. It is also possible to separate good from bad manager because \( f(\theta, \bar{\alpha}, N^*) \neq f(\bar{\theta}, \bar{\alpha}, N^*) \). After investment was sunk, the private sector must hire managers. This implies offering them wages at least as attractive as in the public sector. Following proposition 1, if pooling is observed, scheme B will prevail in the second period. The maximal expected surplus for the private sector, if pooling is observed, is thus \( p[f(\theta, \bar{\alpha}, N^*) - (2\bar{\alpha} - \bar{\alpha})] + (1 - p)[f(\bar{\theta}, \bar{\alpha}, N^*) - \bar{\alpha}] \).

Hence the private entrepreneur will invest \( rK \) in the beginning of the second period, if and only if, the expected surplus enables him to cover investment cost. This implies that \( rK > p[f(\theta, \bar{\alpha}, N^*) - (2\bar{\alpha} - \bar{\alpha})] - (1 - p)[f(\bar{\theta}, \bar{\alpha}, N^*) - \bar{\alpha}] \) which contradicts our assumption. There will be no entry. **QED**

7
Proposition 2 allows us to narrow the analysis in the sense that possible entries can occur only when the good managers choose $y_1$ in the first period.

The upper limit on the wage, $\bar{w}_2^*$, offered to the good managers, who have produced $y_1$ in the first period, is thus $f(\bar{\theta}, \bar{a}, N^*) - rK$.

We will now analyze the government's optimal strategies, depending on the size of the private sector, and thus the wage that can be given to good managers in the second period. For $p \in [p, \bar{p}]$, three different strategies are available to the government.

A first strategy, which we will call $s_1$ consists in having the good managers produce $y_1$ in $t = 1$ and having them exit to the private sector in $t = 2$. The payoff to the government is:

$$\Pi(s_1) = p(y_1 - \bar{w}_1) + (1 - p)[(y_2 - \bar{w}_1) + (y_2 - \bar{a})].$$

where $\bar{w}_i$ = wage offered by the government for $y_1$ in period $t$,

$w_t$ = wage offered by the government for $y_2$ in period $t$.

A second strategy consists in having the good managers do $y_1$ in $t = 1$, and having them stay in $t = 2$. The payoff is:

$$\Pi(s_2) = p[(y_1 - \bar{w}_1) + (y_1 - \bar{w}_2)] + (1 - p)[(y_2 - \bar{w}_1) + (y_2 - \bar{a})].$$

The third strategy is pooling in $t = 1$ followed by scheme B. We write this as strategy $s_3$ with payoff:

$$\Pi(s_3) = p[(y_2 - \bar{w}_1) + (y_1 - (2\bar{a} - \bar{g}))] + (1 - p)[(y_2 - \bar{w}_1) + (y_2 - \bar{a})].$$

$w_1, w_1$ and $\bar{w}_2$ are chosen by the government in order to maximize its payoff given incentive compatibility constraints. A few remarks are in order here. To have $\bar{\theta}$ choose $y_1$ in period 1, they must receive an intertemporal wage package that gives them at least as much rents as under pooling. We must thus have:

$$\bar{w}_1 - \bar{a} + \max(\bar{w}_2, \bar{w}_2^*) - \bar{a} > w_1 - \bar{a} + (2\bar{a} - \bar{g}) - \bar{a}.$$  

Next, if the $\bar{\theta}$ have chosen $y_1$ in $t = 1$, there will be a "Bertrand type" competition between the private and the public sectors for this manager services. The government will want $\bar{\theta}$ to stay in the public sector in $t = 2$ only if $\bar{w}_2 \leq y_1$. Promises of higher wages are not credible.

We now prove the basic result of the paper which consists in showing that the existence of a private sector of a significant size makes it possible to overcome pooling and managerial slack and improve the government's payoff.
Proposition 3:

(i) if $\forall N^*, f(\overline{\theta}, \overline{a}, N^*) - rK < 3\overline{a} - 2\overline{a} + y_2 - y_1 - \frac{1}{p}(y_2 - \overline{a})$, then $s_3$ is optimal and is the unique perfect bayesian equilibrium;

(ii) if " N*, $f(\overline{\theta}, \overline{a}, N^*) - rK \in [3\overline{a} - 2\overline{a} + y_2 - y_1 - \frac{1}{p}(y_2 - \overline{a}), y_1]$, then $s_2$ is optimal and is the unique perfect bayesian equilibrium, with $\overline{w}_1 = 2(2\overline{a} - \overline{a}) - \overline{w}_2^*, \overline{w}_2 = \overline{w}_2^*$; and $\overline{w}_2^* = f(\overline{\theta}, \overline{a}, N^*) - rK$;

(iii) if " N*, $f(\overline{\theta}, \overline{a}, N^*) - rK > y_1$, then $s_1$ is optimal and is the unique perfect bayesian equilibrium, with $\overline{w}_1 = 2(2\overline{a} - \overline{a}) - \overline{w}_2^*$ and $\overline{w}_2^* = y_1$.

Proof:

Start with (iii). If $f(\overline{\theta}, \overline{a}, N^*) - rK > y_1$, the private sector can profitably outbid the public sector by setting $\overline{w}_2^* = y_1$. Hence $s_2$ will always be dominated by $s_1$. It remains to see if $s_1$ is preferable to $s_3$. It can easily be checked that either under $s_1$ or under $s_3$ one has $\overline{w}_1 = \overline{a}$. Under $s_1$ one has $\overline{w}_1 = 2(2\overline{a} - \overline{a}) - y_1$. Thus $\Pi(s_1) > \Pi(s_3)$ iff $y_1 - y_2 > \Delta a$. This condition is always verified.

Consider now (ii). If $f(\overline{\theta}, \overline{a}, N^*) - rK \in [3\overline{a} - 2\overline{a} + y_2 - y_1 + \frac{1}{2}(y_2 - \overline{a}), y_1]$, then the government can always outbid the private sector by credibly setting $\overline{w}_2 = f(\overline{\theta}, \overline{a}, N^*) - rK$. By doing this, it minimizes the second period wage paid for $y_1$. $\overline{w}_2$ remains below $y_1$, which means that $s_2$ is always preferred to $s_1$. Here again $\overline{w}_1$ will be set to $\overline{a}$ and, therefore, the minimum incentive compatible payment for inducing separation in period 1 becomes $\overline{w}_1 + \overline{w}_2 = 2(2\overline{a} - \overline{a})$. One verifies that, if feasible, $s_2$ is then always preferred to $s_3$ as $\Pi(s_2) = \Pi(s_3) + pd_1$. Note that setting $\overline{w}_2 > f(\overline{\theta}, \overline{a}, N^*) - rK$ is not credible, because once the separation has occurred, $\overline{w}_2$ would be set at the lowest level compatible with keeping the $\overline{\theta}$ in the public sector. We must thus have $\overline{w}_2 = f(\overline{\theta}, \overline{a}, N^*) - rK$, and $\overline{w}_1 = 2(2\overline{a} - \overline{a}) - \overline{w}_2$. The question now concerns the feasibility of $\overline{w}_1$ for the public sector. Because of the liquidity constraint facing the public sector, $\overline{w}_1$ is bounded by the following condition: $p(y_1 - \overline{w}_1) + (1 - p)(y_2 - \overline{a}) > 0$. Hence combining this condition with the equation $\overline{w}_1 = 2(2\overline{a} - \overline{a}) - [f(\overline{\theta}, \overline{a}, N^*) - rK]$, shows that separation in the first period is possible only if $f(\overline{\theta}, \overline{a}, N^*) - rK < 3\overline{a} - 2\overline{a} + y_2 - y_1 - \frac{1}{2}(y_2 - \overline{a})$. This is the case under (ii).

We turn now to (i). The above discussion showed that when $f(\overline{\theta}, \overline{a}, N^*) - rK < 3\overline{a} - 2\overline{a} + y_2 - y_1 - \frac{1}{2}(y_2 - \overline{a})$, $s_2$ is not feasible. In addition $f(\overline{\theta}, \overline{a}, N^*) - rK < y_1$ implies that the private sector is then too small to be able to compete with te
public sector in the second period and hence $s_2$ is not possible any more. The only strategy left to the government is $s_3$. 

The intuition for proposition 3 is easily understood. Forcing itself to compete with the private sector for the good managers is a way for the government to create commitment. Indeed, in the absence of commitment, separation is very costly because the revelation of information on the managers' types enables the government to eliminate all rents in the future. Competition with the private sector introduces a possible penalty for the government. This penalty is credible when the intertemporal wage structure is set in such a way as to make the outside option of the private sector potentially attractive, and this credible commitment allows enhanced public sector efficiency. When, however, the private sector is too strong, then competition is no longer possible and good managers will be able to exit profitably in period 2. Then, it is in the interest of the government to hold first period wages for $y_1$ as low as possible. Good managers choose high effort in the first period because this allows them to profit in the future from an attractive wage offer in the private sector. Even though the good managers exit, this solution is preferable to pooling because of the efficiency gain and the first period economy in wage payments. When the size of the private sector is smaller, it is in the interest of the government to set the first period wage high enough to make the outside option available in the second period. When the private sector is too small, the first period wage payment necessary to allow for this becomes too high and cannot be paid out of the net product. We then have the pooling outcome, as in the case where there is no private sector. There is thus a threshold size to the private sector, (where $\bar{w}_2 = 3\bar{a} - 2\bar{a} + y_2 - y_1 - \frac{1}{2}(y_2 - \bar{a})$) for which a correct intertemporal wage structure can enhance public sector efficiency through the sheer effect of the competition for the services of the good managers.

CONCLUSION

We have presented a simple ratchet model. It was shown that under conditions yielding pooling and managerial slack in an economy where a profit-maximizing government is the sole employer, the introduction of a private sector of a sufficient size allows the elimination of this inefficiency.

The basic idea we put forward here is that the government loses its hold-up power over managers if the latter have the outside option of a career in the private sector. This outside option will make credible the commitment to optimal incentive schemes because of the potential loss that the exit of good managers inflicts on the government. In order to keep this outside option, the good managers will be tempted to provide high effort in order to signal their ability to the private sector. However, for this outside option to be real, the private sector must have a certain size. Allowing an able top manager from a big steel factory to open up a small restaurant is not really an option. The discussion concentrates on the case where pooling occurs in a socialist economy, because it allows one to see quite clearly the changes brought about by the introduction of the managerial labor market.
Stressing the importance of the managerial labor market for the efficiency of managerial incentives does not mean that an important managerial mobility will necessarily be the outcome, nor that this outcome is desirable. Interfirm mobility is for example notoriously low in Japan. The existence of the outside option in itself sufficient to achieve efficiency. A Japanese firm could not exercise a holdup power vis-à-vis its managers, because the latter could always exit and get hired by other independent firms.

The fact that managers in the public sector have the possibility, during their career, to switch to the private sector may pose problems however. The industrial organization literature has usually emphasized the disadvantages of such "revolving down" arrangements which exist in the US and Japan (or partouflage in France) because a regulator may collude with the private sector in order to receive a job later in his career. The purpose of this paper was to emphasize efficiency advantages of such arrangements: giving outside options to managers and breaking the quasi-monopsony of Government vis-à-vis managers (Roland and Sekkat, 1993). This advantage has not been emphasized much in the literature.
REFERENCES


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