Control over Bureaucracy: The Controversial Role of Complaints

Ferenc Szűcs

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Abstract

In this paper I study the role of complaints in the control of bureaucrats. I found that client complaints might have two different effects on the motivation of bureaucrats. The first effect provides a tool to create a monetary incentive, but the second effect ruins the internal motivation of mission oriented bureaucrats. The question whether the first or the second effect is stronger depends on the ratio of clients interested in high effort. If this ratio is small then principal should ignore complaints, while in case of a big ratio the principal’s optimal strategy is to acknowledge all complaints. Another implication of the model is that under some circumstances in case of a moderate ratio the optimal solution for the principal is partial ignorance toward complaints.

1 Introduction

Bureaucratic allocation of goods is very common in modern economy. Although for a long time economists were mainly interested in the functioning of markets, now there is an increasing interest toward the mechanism of bureaucratic allocation. Bureaucracy is usually considered as inefficient, and the motivation of bureaucrats by creating well designed incentives is getting more fashionable (see Heckman, Smith and Taber [1996]). The objective of this paper is to understand how to create better incentives for the bureaucrats.

The motivation of bureaucrats is a typical example of the principal-agent problem because it shows two important characteristics. First the bureaucrats’ incentives may be different from those of their principals (Niskanen [1968], Wilson [1989]). Second, this situation is exposed to strong informational asymmetries, since bureaucrats are entrusted because of their superior information or specific expertise.

Although this problem has a few special aspect which may differentiate it from the textbook version of principal-agent problem. In the original version of the principal-agent model the principal has no precise information about the effort of the agent, but has imperfect information about it through the outcome
of the agent’s activity, which is correlated with the effort. Indeed the informational asymmetries emerging in case of public bureaucracies can be even stronger than in case of private companies, since the output of bureaucratic agencies is very hard to quantify (Dixit [1997]). This may be the reason why market is replaced with bureaucratic coordination in the production of certain goods. In extreme case, the principal could have no information at all. At first glance this doesn’t seem so interesting, since if the principal has no information then she has no chance to create incentives for the agent. On the other hand, this is not the case if there is a third party who has some information and who is interested in revealing it. Clients can be seen as such players. This creates a special three-player modification of the original principal-agent problem. Consequently, contract theory approach may give new insights into the role of complaints in agency problems.

The only analysis of client complaints using incomplete contracts approach was conducted by Prendergast. He used complaints as a possible source of information about the performance of bureaucrats (Prendergast [2003], [2007]). In his framework bureaucrat’s duty is to allocate a good among clients. Only some of the clients are entitled to have access to the good, and the principal entrusts the bureaucrat to identify them. To check the effort of agents, the principal listens to the complaints of the clients. On the other hand, clients are not perfectly reliable and they are not complaining in every case when the bureaucrats misallocate the good. As a result of this, the principal is listening to the complaints on an ex post insufficient level.

This paper is similar to Prendergast’s article in many aspects. In my discussion, I also treat the client complaints as the possible source of information about agent effort and I also assume that clients’ interests coincide the principal’s interests only partially, hence the clients are not totally reliable. While clients are unreliable in a different way, they are able to convey false information and not just detain true information. To put it another way, complaints contain soft information.

There are also differences between the situation analyzed here and in the papers of Prendergast. Many real life situation can not be characterized as a simple allocation problem and the clients could actively influence the quality of bureaucratic services. Consequently, in this paper, instead of an allocation problem, I analyze a production situation where the bureaucrat and the agent are producing a good together.

Another important novelty of my approach is that the effort of the bureaucrat and of the client has to be synchronized. This statement is based on two assumptions. The first is that higher client effort improves the quality of the good. On the other hand, the second assumption is that the quality is not monotonic in the bureaucrat’s effort. This means that higher bureaucrat effort improves the quality of the good if the client effort is high, but it blocks the access to the good of those clients who choose low effort. This characteristic of the situation results in asymmetries in the preferences of clients. Clients whose effort is costly prefer low effort from the bureaucrat too, but clients facing low costs might choose to coordinate on high effort. Consequently, if the cost of
effort is private information then the motivation behind complaining become
diverse and complaints are not perfectly reliable any more, because clients with
high costs complain in case they have to show high effort. To put it on another
way, complaint is not the perfect indicator of bureaucratic effort.

At this point let us have a look at the question that why would a bureaucrat
chose high effort if she has to work with a client who prefers low effort. It comes
from the fact that at least some of the bureaucrats are mission oriented and
they gain utility from showing high effort. This means that mission oriented
bureaucrats choose high effort not just because of external monetary incentives
but because of internal motivation too. There are several studies about the
relevance of mission oriented agents (Prendergast [2007], Besley and Ghatak
[2005]). On the other hand, this paper is the first which analyzes the relevance
of mission orientation in relation with client complaints.

The framework used in this paper seems to be plausible in many real life
situations. I mention here two important examples. The first example is higher
education. The affectivity of education depends on the joint effort of teachers
and students. In the production function of human capital the efforts of teachers
and students are complements. On the other hand, students are not benefiting
from higher teacher effort in every case. Badly performing students may fail
the exam if teachers are taking their job seriously. Furthermore the role of
complaints is important since student feedback systems are extensively used in
higher education.

The second example might be those branches of public administration which
requires knowledge from both the bureaucrat and the client. For example the
launching of a new technology (for example the internet) to the administration
creates the need of new knowledge. Acquiring new technological knowledge is
costly for both players of administration. The role of complaints is interesting
in this application too. There may be several ways, including voting at the next
election, to complain about the quality of public goods.

The objective of this paper is to analyze the role of client complaints in the
motivation of bureaucrats. The main result of the discussion is that complaints
might have two conflicting effects. The first effect enhances effort of bureaucrats
by giving information about their performance. The second effect ruins internal
motivation by providing false information about low performance. The optimal
strategy of the principal depends on whether the first or the second effect is
stronger. I will show in this paper that this is in connection with the ratio of
clients interested in high effort.

Another important aspect of the model is that not just the two extreme
cases, when the complaints are totally acknowledged or totally ignored, exist.
When the ratio of high effort clients is moderate partial ignorance will be the
equilibrium. It gives a possible explanation of the fact that some of the uni-
versities initiate student feedback systems but ignore complaints partially. It
can be a factor behind the disadvantages of strong democratic control over the
administrative modernization in the middle income countries.

In the next section I develop a model of client complaints. The following
section presents a discussion about the two main applications of the model.
Finally in Section 4 I draw the conclusions of the paper.

2 Model of complaints

A. Structure of the model

In this part we outline the structure of the baseline model which aims to show the reaction of clients to the different complaint regimes. As it was discussed in the introduction, the model has three players the principal, the agent (bureaucrat), and the client. The model consists of two periods and in between these two periods the clients are able to complain (without any cost) in the hope of getting rid of the inconvenient bureaucrat.

The timing of the game is the following:

1. The principal announces a contract, formally \((w_1, w_2, p) \in \mathbb{R}_+^2 \times [0, 1]\). The contract consist of the wages of the two periods and the probability that the bureaucrat could keep her job in case of a complaint. The bureaucrat and the client are matched randomly.

2. First period:

   (a) The bureaucrat observes the type of the client and chooses a \(y_1\) effort level.

   (b) The client observes the effort of the bureaucrat and chooses an \(x_1\) effort level.

   (c) The payoffs of the first period are realized.

3. The client chooses whether to complain or not, formally \(C \in \{Y, N\}\). If there is a complaint the principal dismiss the bureaucrat with probability \((1 - p)\). If the bureaucrat is dismissed a new one is randomly selected.

4. Second period: The same as the first.

The next step is to have a look at the objective functions of different actors.

Clients - The clients value high quality services, but the access to high quality services requires costly effort from them. Their payoff function per period is

\[
F_C = f(x_1, y_1) + f(x_2, y_2) - ex_1 - ex_2,
\]

where \(f(x_i, y_i)\) is the value of the service obtained during period \(i\), when \(x_i\) is the effort of clients in period \(i\), \(y_i\) is the effort of bureaucrats in period \(i\) and \(e\) is the cost of client effort. The effort of both players can take on two values, \(x, y \in \{0, 1\}\). The order of service values are the following: \(f(1, 1) > f(1, 0) > f(0, 0) > f(0, 1) = 0\). The service provided by the bureaucrat is the most effective when both the bureaucrat’s and the client’s effort is high. The function is increasing in both players’ effort, except in the case of high bureaucrat and low client effort, where the client couldn’t get the service and it gives him zero payoff. This property of the service value functions
will be supported with examples in the next section where I discuss the possible areas of application.

This structure of payoffs characterizes four types of clients according to the size of their effort costs.

1. If \( e \in [0, \varepsilon] \), where \( \varepsilon \equiv f(1, 1) - f(1, 0) \), then the client will show high effort whatever the bureaucrat does.

2. If \( e \in [\hat{e}, \varepsilon] \), where \( \hat{e} \equiv f(1, 1) - f(0, 0) \), then the client will show high effort if the bureaucrat chooses high effort too, and he prefers to coordinate on high effort.

3. If \( e \in [\hat{e}, \tau] \), where \( \tau \equiv f(1, 1) - f(0, 1) \), then the client will show high effort if the bureaucrat chooses high effort too, but he prefers to coordinate on low effort.

4. If \( e \in [\tau, \infty] \), then the client will show low effort whatever the bureaucrat does.

In the following part of the paper I assume that \( e \in [\varepsilon, \tau] \), which means that every client are either type 2 or type 3. From now on I assume that there are two types of clients a good one \((e_g \in [\varepsilon, \hat{e}] \) and a bad one \((e_b \in [\hat{e}, \tau]) \) and the ratio of good clients is \( \alpha \). Both types cooperate with the bureaucrat (since \( e_g, e_b \in [\varepsilon, \tau] \)), but the good one is interested in high and the bad one in low effort.

**Bureaucrats** - Two types of bureaucrats exist in this model with the same probability. The good type is a mission oriented bureaucrat, who prefers to work hard without monetary incentives. Her payoff function for the two period of work is: \( F^B_g = w_1 + w_2 + hy_1 + hy_2 \), where \( w_i \) is the wage in semester \( i \) and \( h > 0 \) is the benefit from working hard. This benefit can be seen as a net balance of internal motivation and laziness, which is positive for the mission oriented bureaucrats. The bad type is not mission oriented, and without monetary incentives she does not work. Her payoff function is: \( F^B_b = w_1 + w_2 - ly_1 - ly_2 \), where \( l > 0 \) is the cost of working hard. There are two constraints concerning the bureaucrats. One is the limited liability constraint: \( w_1, w_2 \geq 0 \). This means that the wage has to exceed a given level. The other is the participation constraint of bureaucrats: \( E(F^B_i) \geq 0 \), where \( i \in \{g, b\} \).

**Principal** - The third player is the principal who is interested in maximizing the service value and minimizing wages. Her payoff function is: \( F^P = f(x_1, y_1) + f(x_2, y_2) - w_1 - w_2 \). The concept behind this objective function is that the principal is committed toward the long-term benefits obtained by the clients and she is not interested in the short-term effort costs and she wants to realize her objectives in a cost efficient way. The principal decides the wages of bureaucrats and can decide whether to dismiss or reappoint the bureaucrat after the first period. Her decision has a constitutional aspect because she has the power to commit herself to an action which is ex ante optimal but ex post is not the best answer. The type and effort of the client and the bureaucrat are unobservable for the principal. The only signal she could use is the complaint of the client.
To derive the equilibrium of the model, first let us have a look at the second period. In this period the bureaucrat can play whatever she wants, since it has no long-term consequences. As a result of this, the good bureaucrat will show high effort, \( y^g_2 = 1, y^b_2 = 0 \). Since \( e \in [\underline{e}, \bar{e}] \), every client wants to synchronize his effort with that of the bureaucrat. For this reason in case of a good bureaucrat clients choose high, in case of a bad bureaucrat clients choose low effort.

The actions of the first period are formed by the policy applied by the principal, because the action chosen by the bureaucrat might affect the probability of his second period appointment. Now I am going to analyze the first period effects of different policies applied by the principal.

Separating equilibrium - First assume that principal totally ignored complaints \( p = 1 \). In this setup the situation which the bureaucrat faces are similar in the two periods. Consequently, the outcome of the first period will be the same as that of the second. The good (bad) bureaucrat will choose high (low) effort in both periods. This is a potential separating equilibrium since the good and the bad types are choosing different strategies. In both periods the good bureaucrat works hard while the bad bureaucrat shows low effort.

Without complaints the bureaucrat is the pivotal decision maker regarding the efforts within a match in period one. The only remaining question is the optimal wages chosen by the principal. Optimizing on wages the principal faces the following problem:

\[
\begin{align*}
\max_{w_1, w_2} F^p &= 0.5f(1, 1) + 0.5f(0, 0) - w_1 + 0.5f(1, 1) + 0.5f(0, 0) - w_2 \\
&= f(1, 1) + f(0, 0) - w_1 - w_2 \\
\end{align*}
\]

(1)

\[
\begin{align*}
w_1, w_2 &\geq 0 \\
\end{align*}
\]

(2)

\[
\begin{align*}
w_1 + h + w_2 + h &\geq 0 \\
\end{align*}
\]

(3)

\[
\begin{align*}
w_1 + w_2 &\geq 0 \\
\end{align*}
\]

(4)

Where (2) is the limited liability constraint, (3) and (4) are the participation constraints. It is easy to check that the solution of this problem is \( w^*_1 = w^*_2 = 0 \), and only the limited liability constraint is binding. If the principal does not try to create external incentives it is enough to pay the minimum wage required by the limited liability. In this solution the internal motivation of mission oriented bureaucrats remains untouched. Consequently, this complaint regime results in the same separating equilibrium we have seen in the case of homogenous clients.

Pooling equilibrium - Now assume that principal plays \( w_2 > w_1, p = 0 \), which means that principal fully acknowledges complaints. A client with an
\( e \geq \hat{e} \) (\( e < \hat{e} \)) effort cost prefers to be matched with a bad (good) bureaucrat. Consequently, in the complaining period an \( e \geq \hat{e} \) (\( e \geq \hat{e} \)) client complains to the good (bad) bureaucrat, since he could not be worse off and with probability 0.5 the bureaucrat is changed to the preferred one.

On the other hand, the client is not able to observe the type of the bureaucrat, only her effort level. Indeed the clients can react differently only to different levels of bureaucratic efforts and not to different bureaucratic types. The effort level chosen in the first period may contain important information about the type of the bureaucrat since only good bureaucrats want to show high and bad bureaucrats want to show low efforts.

The good clients complain in case of low effort and are able to force even bad bureaucrats to work hard. On the other hand bad clients complain in case of high effort and force good bureaucrats to hide and pretend that they are bad. If we put these things together we get that in the first period clients are the pivotal decision makers.

Good (bad) clients and the bureaucrats they have been paired with show high (low) effort regardless of the bureaucrats’ type. This means that the creation of an external motivation for bad bureaucrats and the protection of good bureaucrats’ internal motivation are in conflict. By acknowledging all complaints the principal are able to force good client bad bureaucrat pairs to choose high effort but discourage bad client good bureaucrat pairs from doing the same.

In this setup the problem of the principal is the following:

\[
\max_{w_1, w_2} F^P = \alpha f(1, 1) + (1 - \alpha)f(0, 0) - w_1 + 0.5f(1, 1) + 0.5f(0, 0) - w_2
\]  

\( w_1, w_2 \geq 0 \)  
\( w_1 + \alpha h + w_2 + h \geq 0 \)  
\( w_1 - \alpha l + w_2 \geq 0 \)  
\( w_1 + h \leq w_1 + w_2 + h \)  
\( w_1 - l + w_2 \geq w_1 \)  

Where (6) is the limited liability, (7) and (8) are the participation constraints, (9) and (10) are two of the four incentive constraints. I left out the two incentive constraints where a client and a bureaucrat with the same goals are matched because that will be evidently fulfilled. The solution of the problem is \( w_1^* = 0, w_2^* = l \), where the limited liability for the first period wage and the incentive constraint of the bad bureaucrat are binding. Besides the conflict with internal motivation external incentive has another cost, too. This cost is the higher wage in the second period.
Semi-pooling equilibrium - From the comparison of these two possible solutions we can find a trade-off between the external motivation of bad bureaucrats and the protection of internal motivation of the good ones. On the other hand, by using partial ignorance toward complaints the principal may release this trade-off. In this setup under some special circumstances there is a third type of potential solutions. In this solution the principal creates external incentives without ruining the internal motivation of mission oriented bureaucrats. This can be true because for moderate values of $p$, we can induce both the bureaucrat and the client to be the pivotal agent exactly when it is optimal to do so.

The principal’s problem in this case is:

$$
\max_{w_1, w_2, p} F^P = \alpha f(1, 1) + (1 - \alpha) [0.5f(1, 1) + 0.5f(0, 0)] - w_1 - 0.5f(0, 0) + 0.5\alpha f(1, 1) + 0.5(1 - \alpha) [p f(1, 1) + (1 - p)(0.5f(1, 1) + 0.5f(0, 0))] - w_2
$$

$$
\begin{align*}
  w_1, w_2 &\geq 0 \\
  w_1 + h + [\alpha + (1 - \alpha)p] (w_2 + h) &\geq 0 \\
  w_1 - \alpha l + w_2 &\geq 0 \\
  w_1 + h + p(w_2 + h) &\geq w_1 + w_2 + h \\
  w_1 - l + w_2 &\geq w_1 + pw_2
\end{align*}
$$

Limited liability is the same as in the previous cases. (13) and (14) are the participation constraints. The incentive constraints (15) and (16) formalize that good bureaucrats are not discouraged from working hard but bad bureaucrats are forced to do so. If we solve the incentive constraints to $p$ we get $p \geq \frac{w_2}{w_2 + h}$ instead of (15) and $p \leq \frac{w_2 - l}{w_2}$ instead of (16).

The optimization between $w_2$ and $p$ can be seen in Figure 1. The lance-shaped area between the two incentive constraints give those $(w_2, p)$ vectors where this incentive structure is feasible. This area has an upward sloping upper boundary, which is the result of the complementarity between $w_2$ and $1 - p$ (the probability of being dismissed). This means that higher future wages provide balanced incentives only when they are more certain after a complaint. The intuitive reason is the following. The stake of complaints is the possible loss of future employment and not a possible future bonus. The complaint is a stick, not a carrot. Given $p$, higher future wages makes the absolute stake of complaints higher. Restoring the original stake requires more oversight.

The principal’s indifference curves are upward sloping straight lines, because the objective function is decreasing linear function of $w_2$ and increasing linear
The explanation behind this is that in equilibrium complaints occur only against good bureaucrats (because they are the only ones who choose an effort level which is not preferred by some of the clients). As a result of this, ignoring complaints increases the objective function by decreasing the number of good bureaucrats being dismissed.

If the slope of the indifference curve is moderate then there is an inner solution (denoted by A in Figure 1), where one of the indifference curves is tangent of the $\frac{w_2 - l}{w_2}$ curve. It is not the only possibility, there might be a corner solution if the slope of the indifference curve is big enough (denoted by B in Figure 1). These results are expressed algebraically in Proposition 1.

**Proposition 1** If $h > l$, then

1. if $\alpha < \hat{\alpha}$, then $w^*_1 = 0$, $w^*_2 = \frac{1}{2} \sqrt{4l(1 - \alpha)}$, $p^* = 1 - 2 \sqrt{\frac{l}{4l(1 - \alpha)}}$,

2. if $\alpha \geq \hat{\alpha}$, then $w^*_1 = 0$, $w^*_2 = \frac{hl}{h - l}$, $p^* = \frac{l}{\pi}$,

where $\hat{\alpha} = \frac{\sqrt{(h-l)^2 - 4l^2h}}{2(h-l)}$.

**Proof.** Can be found in the Appendix. ■

As it can be seen from Proposition 1 this incentive scheme can only be realized if good bureaucrats’ benefit from high effort is greater than bad bureaucrats’ cost. Otherwise the motivation of bad bureaucrats is not possible without discouraging good ones (the lens shaped area of Figure 1 does not exist). This condition is very straightforward, since the punishment is the same for both types of bureaucrats if they choose their preferred effort, consequently
the benefits have to differ. So this incentive scheme is possible if the utility of effort for the good type overweights the disutility for the bad type.

There are two other important results. The first result seems very straightforward. It says that the motivation of bad bureaucrats without the demotivation of good bureaucrats requires higher second period wages ($\frac{hl}{\pi l} > l$).

The second is a more compelling result, namely that second period wage and the probability of keeping the job is positively correlated. This contradicts the common wisdom that a more secure job pays less wage than an uncertain one. The explanation of this result is that smaller probability of being dismissed requires bigger wage in the second period to create the same incentive to work hard.

**Table 1 - Different types of equilibria**

<table>
<thead>
<tr>
<th>Bureaucrat Client</th>
<th>Good</th>
<th>Bad</th>
<th>Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Good</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Good</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In the discussion above I have described three possible equilibria, now I will analyze under certain parameter values which one of these will be optimal for the principal. In this comparative statistics analysis the changing parameter is the ratio of good clients. Table 1 summarizes the motivation effects and the costs of different incentive schemes by showing the effort of bureaucrats in different client-bureaucrat matchings. Partial ignorance has the advantage of total ignorance because a bad bureaucrat has to work hard when she is matched to a good client. On the other hand, in case of partial ignorance second period wage is higher and there is a bad selection effect (because only bad clients complain and only good bureaucrats are dismissed). The advantage arising from better motivation of bad bureaucrats is more valuable if the ratio of good clients is bigger. As a result of this, there is a threshold value of $\alpha$, which is the maximal $\alpha$, where total ignorance is better than partial ignorance.

This logic also works for the comparison of partial ignorance and full acknowledgement. Partial ignorance is superior in motivation of good bureaucrats with bad clients but it has disadvantages arisen from wage and selection. This advantage is weaker if the ratio of good clients is bigger. Consequently, for very large values of $\alpha$ full acknowledgement is better than partial ignorance. It can be shown that under some circumstances for moderate values of $\alpha$ partial ignorance is the optimal solution (its advantages in motivating bureaucrats overwhelming its costs). This is expressed in Proposition 2.

**Proposition 2** If $h > l$ and $0 \leq \hat{\epsilon}(h - l)^2 - 2hl(2h - l)$, then

1. if $\alpha < \hat{\alpha}$, then $w_1^* = 0, w_2^* = w, p^* = 1$,

2. if $\alpha > \hat{\alpha}$, then $w_1^* = 0, w_2^* = \frac{1}{2}\sqrt{\hat{\epsilon}(1 - \alpha)}, p^* = 1 - 2\sqrt{\frac{t}{\epsilon(1 - \alpha)}}$. 


3. if $\alpha \in [\hat{\alpha}, \bar{\alpha}]$, then $w_1^* = 0$, $w_2^* = \frac{hl}{\pi - l}$, $p^* = \frac{l}{\pi}$.
4. if $\alpha \in [\bar{\alpha}, 1]$, then $w_1^* = 0$, $w_2^* = l$, $p^* = 0$.

where $2\sqrt{\hat{\alpha}(1 - \alpha)} = \frac{e(h-l)^2 + 4h^2l}{e(h-l)} - \hat{\alpha}$, $\hat{\alpha} = \frac{\hat{\varepsilon}(h-l)^2 + 4h^2l}{e(h-l)}$, $\bar{\alpha} = \frac{\varepsilon(h+1)(h-l)-4h^2l}{e(h+1)(h-l)}$.

**Proof.** Can be found in the Appendix. ■

These results are exposed in Figure 2. If the difference between the service value of high and low effort is big enough then we can detach 4 different sections. If the ratio of good clients is small ($\alpha \leq \hat{\alpha}$), then total ignorance will be the equilibrium. If $\alpha \leq \alpha < \alpha$, then the inner solution of partial ignorance is the optimal. In this inner solution if $\alpha$ rises than the second period wage is decreases and the probability of dismiss is increasing (we are gradually getting closer to the full acknowledgement). If the ratio of good clients are rising further and the indifference curves of the principal are getting steeper then we switch from the inner solution to the corner solution (here the $w_2$ and $p$ are fix). Finally, if $\alpha$ is close to 1 ($\alpha \geq \bar{\alpha}$), then full acknowledgement is the equilibrium.

### 3 Applications

In this section I outline two real life situations as possible examples of the framework built up in the previous section. In many situations the complaints are considered as an effective control over bureaucracy. Nevertheless there are cases where complaints are not used in an ex ante expected level and the principals...
are not thought to be responsive enough to complaints. There may be other examples which correspond well to this model, but I feel these situations as the closest realizations of the model.

A. Education

Higher education is a field where client complaints are extensively used in the form of student feedback systems. These systems serve many purposes. They aim to help the teachers to obtain information about the special needs of their students. Besides this objective, student feedback systems may function as an external incentive for teachers which forces them to work hard.

The education example fits to our model since it is closer to the joint production than to the simple allocation of a good. Indeed the students’ efforts clearly affect the outcome of higher education. The effectivity of education depends on the joint effort of teachers and students. Usually in the production function of human capital the efforts of teachers and students are treated as complements.

On the other hand, I consider that the effort of students and teachers are not perfect complements because in case of a low student effort the high teacher effort is harmful for the student. This is the result of the fact that if the teacher puts high effort into teaching the students could pass only by showing high efforts. This means that teacher effort and the minimum student effort which is required to pass the exam are strongly correlated. As a result of all these factors the payoff structure of our model seems plausible in case of higher education.

The existence of mission oriented agents in higher education also contradicts with common wisdom. Teaching considered one of the most typical occupations where commitment is important. At least part of the teachers prefers to work hard because of internal motivation. On the other hand, the motivation of teachers should not be built only on internal motivation and student feedback systems are seen as a possible solution to create incentives for teachers.

What does our model say about the effectivity of student complaints? This effectivity are strongly dependent on the ratio students who have low effort costs. The cost of student effort can be interpreted several ways. It can be seen as a parameter of student talent or the level of skills obtained in other courses. Whatever interpretation we use it is highly probable that better universities have students with lower costs. Consequently the model implies that student complaints should be acknowledged at better universities and should not at the worst ones.

The analysis of heterogenous clients gives an even more sophisticated result. If the ratio of good students is moderate then the optimal solution might be partial ignorance, which means that it is worth to implement student feedback systems but the principal should not pay too much attention to student complaints. This implication also seems realistic since middle quality universities usually do not use automatic punishments in case of student complaints while the best universities do so.

These implications are the result of the fact that not all complaints are reliable. Only the low effort cost students complain about low quality education.
Indeed the leaders of those universities where student complaints are not or just partially acknowledged usually argues that student may use feedback systems to get rid of demanding courses.

B. Public administration

The second main application of the model may be any modernization in public administration which needs new knowledge from the clients. A good example of such modernization is the implementation of internet in public administration. It makes administration much more effective but it endanger the access of those clients who are not able to use internet. To put it another way, some of the administrative innovations have a creative destruction aspect and make administration better only for those clients who are prepared to the modernization.

The mission orientation is a realistic assumtion in this example also. Some of the bureaucrats are probably committed to the modernization even in the case when it requires higher effort of them. There can be other explanations behind the heterogenity of the bureaucrats preferencies. An equally good explanation may be that modernization requires higher effort only for a limited time period and it makes administrative work easier for the rest of the time. As a result of this, younger bureaucrats are commited to the modernization because their future carrier are long enough to invest in the neccessary knowledge but it may not hold for the older bureaucrats. This can also be the explanation of the heterogenity of client preferencies.

The results of the paper can be translated to the language of this example too. In poor countries where most clients do not have the neccessary knowledge strong public (or democratic) control hinders administrative modernization. Contrary in rich countries strong public control may enhance innovations in administration. Finally in middle income countries the limited public control may be the better in respect to administrative modernization. The intuition behind this result is that no public control would result in no information about the needs of the society but strong public control leads to a kind of populism where the complaints of unprepared clients hinder modernization.

4 Conclusion

In this paper I have analyzed the role of complaints in a situation where clients are the only source of information about agent’s effort. The main example of this problem comes from the field of education. In many universities students may complain about the performance of teachers. The other important example might be public administration. In both examples joint effort of bureaucrat and client is needed.

Complaining is costless which gives a cheap talk characteristic to the situation, since not every client has the same motivation behind complaining. The clients with high costs complains if the bureaucrat shows high effort, while clients with low costs resent low effort. As a result of this acknowledging complaints
has two different effects which work in the opposite direction. The first effect is that complaints create an external incentive for lazy bureaucrats to work hard if they are matched with a low cost client. The second effect is that complaints of high cost clients ruin the internal motivation of mission oriented bureaucrats.

The main result of the paper is that principal’s optimal strategy depends on the ratio of low cost clients. If this ratio is very small then principal should ignore complaints since the negative effect is much stronger. On the other hand if the ratio is close to one then total acknowledgement is the best solution. These results are in concordance with the fact that most of the week universities ignore student complaints while top universities automatically punish teachers in case of bad student feedbacks.

The most interesting implication is that if the ratio of high cost clients are moderate then the principal’s optimal strategy is to partially ignore the complaints to motivate bad bureaucrats without demotivate mission oriented agents. This implication is the main contribution of the paper because without a closer examination of the present incentives it is not clear whether a weak complaint system empowers the student with large enough discretion to determine the effort levels. It turns out that under a well interpretable condition \((h > l)\) it is true just partially (the students are pivotal only in specific student-teacher matchings) and moreover, this situation can be eventually the best option to be implemented. In reality some of the medium quality universities choose this strategy by introducing student feedback systems but ignore complaints partially. It can be a factor behind the limited democratic control over bureaucracy and the partial ignorance toward complaints in middle income countries.

References


5 Appendix

5.1 Proof of Proposition 1

Principal’s objective function:

\[
\max_{w_1, w_2, p} F_P = \alpha f(1, 1) + (1 - \alpha) \left[ 0.5 f(1, 1) + 0.5 f(0, 0) \right] - w_1 \\
+ 0.5 f(0, 0) + 0.5 \alpha f(1, 1) + 0.5 (1 - \alpha) \\
[ p f(1, 1) + (1 - p)(0.5 f(1, 1) + 0.5 f(0, 0)) ] - w_2
\]  

(17)

1. If there is an inner solution then the \( p \leq \frac{w_2 - l}{w_2} \) constraint will be binding. After substituting the constraint to the objective function the first order condition will be the following:

\[
\frac{\partial F_P}{\partial p} = 0.25(1 - \alpha) (f(1,1) - f(0,0)) - \frac{l}{(1 - p)^2} = 0
\]  

(18)

From the first order condition we can derive \( p^* = 1 - 2\sqrt{\frac{l}{c(1 - \alpha)}} \) and by substituting this expression back to the constraint we get the optimal second period wage \( w_2^* = \frac{1}{2} \sqrt{lec(1 - \alpha)} \).

2. If there is a corner solution then both incentive constraints will be binding: \( p = \frac{w_2 - l}{w_2} \) and \( p = \frac{w_2}{w_2 + l} \). From this we get \( w_2^* = \frac{hl}{h - l} \) and \( p^* = \frac{l}{h} \). \( w_2^* > 0 \) and \( p^* < 1 \) if and only if \( h > l \).

The threshold value of \( \alpha \) - which separates the corner solution from the inner solutions - can be determined by the following equation:

\[
w_2^{inner} = \frac{1}{2} \sqrt{lec(1 - \alpha)} = \frac{hl}{h - l} = w_2^{corner}
\]  

(19)

From this equation we get \( \hat{\alpha} = \frac{e(h - l)^2 - 4hl^2}{e(h - l)^2} \).

5.2 Proof of Proposition 2

1. Partial ignorance is better than total ignorance if:

\[
V_{TI} = f(1, 1) + f(0, 0) \leq V_{PI}
\]  

(20)

\[
= \frac{1}{2} \left[ c \left( \alpha - (1 - \alpha) \sqrt{\frac{l}{c(1 - \alpha)}} \right) \right] \\
+ f(1, 1) + f(0, 0) - \frac{1}{2} \sqrt{lec(1 - \alpha)},
\]
Where $V$ is the principal’s value function \((V = F^P(w^*_2, p^*))\) This expression simplifies to:

\[2\sqrt{\tilde{e}(1 - \alpha)} - \alpha \tilde{e} \leq 0.\]

From this a threshold value of $\alpha$ is given by

\[2\sqrt{\tilde{e}(1 - \alpha)} - \alpha \tilde{e} = 0.\]

This equation has only one solution, since the left hand side is decreasing and the right hand side is constant in $\alpha$.

We can ensure that partial ignorance is optimal (even one of the inner solutions exist) if:

\[V_{TI}(\tilde{\alpha}) \leq V_{PI}(\tilde{\alpha})\] (21)

Which holds if:

\[\frac{\tilde{e}(h - l)^2 + 4h^2l}{3h - l} \leq \frac{\tilde{e}(h - l)^2 - 4h^2l}{(h - l)}.\]

It simplifies to:

\[0 \leq \tilde{e}(h - l)^2 - 2hl(2h - l)\]

1. Partial ignorance is better than full acknowledgement if:

\[(0.5 + \alpha) f(1, 1) + (1.5 - \alpha) f(0, 0) - l = V_{FA} \leq V_{PI} = \frac{1}{2} \left( \tilde{e} \left( \alpha - (1 - \alpha) \right) \frac{l}{\tilde{e}(1 - \alpha)} \right) + f(1, 1) + f(0, 0) - \frac{1}{2} \sqrt{\tilde{e}(1 - \alpha)},\] (22)

From this the threshold value of $\alpha$ is $\alpha = \frac{\tilde{e}(h+l)(h-l)-4h^2l}{e(h+l)(h-l)}$. 

16