

WPS3772

# Sweetening the Carrot

## Motivating public physicians for better performance †

Ariadna Garcia-Prado \*

### Abstract

It is widely observed that many physicians working in public health facilities do not put in the required effort and/or time in their jobs. At the same time, many public physicians remain highly motivated, working long hours for little financial reward in providing quality health services. This mix of provider-types poses fundamental challenges in the design of compensation mechanisms and monitoring regime in public facilities, where the ultimate objective of any reward-control paradigm is to improve the inoptimal performance of some physicians without compromising the effort of those already motivated.

This paper presents a model to explain shirking behavior among public physicians and explores combinations of monitoring and incentive mechanisms that meet the twin objectives of inspiring the shirkers without losing the motivated. Drawing upon the basic Shapiro-Stiglitz shirking model and the theory of social custom, the paper develops and presents a design of incentive structures that consists of punitive monitoring systems accompanied by non-pecuniary rewards. The analysis shows that intensive monitoring persuades the shirking physicians to improve their performance but may have a negative effect on the morale of those already motivated. Our findings indicate that non-pecuniary rewards and recognition for the latter can potentially restore the incentives and counter the deleterious effect of increased supervision. The policy implications are discussed by presenting interesting case studies in the health care context of developing countries.

**JEL Classification:** I11; I18; J33

**Keywords:** Public physicians; Shirking; Motivation; Monitoring; Incentives

World Bank Policy Research Working Paper 3772, November 2005

*The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the view of the World Bank, its Executive Directors, or the countries they represent. Policy Research Working Papers are available online at <http://econ.worldbank.org>.*

---

† I am very grateful to Mukesh Chawla for his support in developing this paper. I also would like to thank Albert Ma, Lise Rochaix, David Salkever, David Bishai, Hugh Waters and the participants at the Health Economics Seminar held at Johns Hopkins University (Baltimore, US), and at the 4<sup>th</sup> Health Economics Workshop (Oslo) for their helpful comments. Financial support from Public University of Navarra is gratefully acknowledged.

\* Address for correspondence: World Bank, Room I 7-024B.  
1818 H Street, NW, Washington DC, 20433 (USA). Phone:(202)4587596 (work)  
(202)3788383 (cell) Fax:(202)5220050. Email: [agarciaprado@worldbank.org](mailto:agarciaprado@worldbank.org)

## **1. Introduction**

Absenteeism and shirking among medical personnel are widely observed in public health facilities in many developing countries, where employment is characterized by fixed compensation – usually in the form of salaries – and ineffective monitoring. For instance, in Venezuela specialists and senior doctors miss about one third of their contracted service hours, while residents and nurses are absent about 13% and 7% respectively of these hours (Di Tella, and Savedoff, 2001). Similarly, several studies based on surprise visits to public health care facilities of Bangladesh, Honduras, India, Peru and Uganda found that 42%, 27%, 43 %, 26% and 35% of the medical personnel working at these facilities were absent (World Bank, 2003).

At the same time, many public physicians remain highly motivated, putting in lots of effort and working long hours to provide quality patient care for little financial reward. This mix of provider-types poses fundamental challenges in the design of compensation mechanisms and monitoring regimes in public facilities. On the one hand, as argued by the shirking version of economic models of efficiency wages (Shapiro and Stiglitz, 1984) higher wages or intensive monitoring or a combination of both is likely to induce workers to put forth more effort. On the other hand, as argued by industrial psychologists and sociologists (Kaufman, 1984; Deci et al, 1971, 1975, 1999; Lepper et al, 1973), stringent monitoring can be construed by some as indicative of employers' distrust and may result in reduction of work effort. These contrary behavioral responses pose a design problem, since the ultimate objective of any reward-control paradigm must be the improvement of inoptimal physician performance in such a way that it does not compromise the effort of those already motivated.

Striking a balance between wages and monitoring in the design of compensation mechanisms is particularly important in the health sector, where production and delivery are both highly labor intensive. Indeed, worker motivation – loosely defined as an individual's degree of willingness to exert and maintain effort necessary to meet organizational goals (Franco et al, 2002) – is the key determinant of health sector performance. While resource availability and worker competencies are necessary for the

production of delivery of health services, they are not sufficient by themselves to ensure desired worker performance. Worker performance depends, to a large degree, on workers' level of motivation stimulating them to come to work regularly, work diligently, be flexible and willing to carry out the necessary tasks (Hornby and Sidney, 1988). Health service delivery, quality, efficiency, and equity are all directly affected by workers' willingness to apply themselves to their tasks.

This paper explores some combinations of monitoring and incentive mechanisms that meet the twin objectives of inspiring the shirkers without losing the motivated. Drawing upon the basic Shapiro-Stiglitz shirking model and building upon the social custom model of Chang and Lai (1999), the paper develops and presents a design of incentive structure that consists of punitive monitoring systems accompanied by non-pecuniary rewards. Thus, by considering the role of such rewards in our model specification, we improve Chang and Lai's model. This paper shows that in cases where intensive monitoring persuades the shirking physicians to improve their performance but has a negative effect on the morale of those already motivated, non-pecuniary rewards and recognition for the latter can potentially restore the incentives and counter the deleterious effect of increased supervision. In general, the paper asserts that the existence of shirking and motivated employees has important implications for the design and management of compensation mechanisms, and presents a possible solution to the widely observed problem of shirking behavior commonly observed among public physicians in developing countries.

This article contributes to an emerging literature that further develops the general theory of incentives--which assumes that an agent gets utility solely from money income the principal pays him, and disutility from the effort he exerts on behalf of the principal. Some recent papers have developed interesting theoretical models, where concepts such as identity with the organization goals, mission, and implicit contracts were introduced (Akerlof and Kranton, 2003; Benabou and Tirole, 2003; Francois, 2002; Murdock, 2002, Besley and Ghatak, 2003). This paper shares with them the notion that consideration of non-pecuniary aspects of motivation matters.

Although the approach of this paper is essentially conceptual, it is motivated by experiences in hospital management in several countries. Thus, we develop our model in a framework with heterogeneous workers with the purpose of illustrate its implications by interesting case studies in the health care context.

The rest of the paper is organized as follows. Section 2 examines the importance of worker morale and motivation in the light of organizational and individual behavior and presents a brief review of the relevant literature. Section 3 presents the model on physician behavior. The model implications and some experiments in using non-pecuniary incentives in the health care context are discussed in Section 5. Section 6 concludes.

## **2. Worker motivation and morale**

The assumption that labor productivity depends on the real wage paid by the firm is the center of the efficiency wage theory. Different approaches of this theory (Yellen, 1984) show how higher wages cause lower turnover, improvement in the average quality of job applicants, improved morale and reduce shirking. In the shirking version of efficiency wages – expounded by Shapiro and Stiglitz (1984) – firms overpay workers in order to make their jobs valuable, induce effort exertion and make them less likely to shirk. As long as the wage is higher, the worker’s loss will also be higher when he or she is dismissed, and thus the worker will provide more effort to prevent being fired. This standard model assumes that, other things being equal, a rational agent would always find it profitable to shirk, and therefore much attention has been devoted to exploring the ways and means of disciplining workers within firms. The shirking theories argue that intensive supervision will induce workers to put forth more work effort since the shirking worker would suffer more if the probability of being caught (and punished) is higher. Measures used to reduce shirking levels thus include intensive monitoring and regulation.

In essence, therefore, the shirking version of efficiency wages claims that the firm can obtain a given level of effort either by paying higher wages with lower monitoring, or

by engaging in tighter monitoring with lower wages. In other words, the wage (carrot) incentive and the supervision (stick) incentive are substitutes for the firm. Central to the shirking models is the notion of imperfect information, as firms cannot observe the effort or output of workers, and supervision is costly. Empirical evidence supporting this theory has been offered by Rebitzer (1995) and Kruse (1992), among others.

The trade-off between supervision and wages has been widely discussed. Labor discipline models posit that, as long as there is a conflict of interests and asymmetric information between employers and employees, workers might have no incentive to increase work effort even in return for a higher wage. Therefore, wage incentives can extract labor effort only if complemented by supervision (see Gordon, 1990 or Leonard, 1997, showing empirical support for this approach).

In general, both approaches assert that employees choose effort levels by comparing marginal costs and benefits of working hard while employers use high wages and/or supervision to persuade workers to work hard rather than shirk.

However, workers respond not only to external interventions such as supervision and wage-premia but also to other mechanisms such as socialization, promotion, recognition and professional ethics that reinforce their intrinsic motivation. According to Akerlof (1982, 1984, 1987), a climate of fairness, rather than the calculation of the costs and benefits of shirking, is what elicits desirable behavior from employees. By developing a “social custom theory”, he highlights the influence of norms or customs on work behavior, and introduces the notions of worker-morale and psychology in the workplace.

Work morale has been shown to significantly influence work effort (Beer et al, 1984; Congleton, 1991; Bewley, 1995; Frey, 1993), especially in areas where it is particularly costly to influence worker behavior by external actions. Relationships strongly based on trust – such as between patients and doctors - and activities where the quality of performance is difficult to observe and/or require a high degree of discretionary decision-making are examples of those areas.

Frey (1993) challenges the belief that more stringent monitoring leads to more work effort. The basic premise of his argument is that, as in the view of industrial psychologists and sociologists, there exists an implicit contract between principal and agents based on trusting the behavior of the workers. Increasing the intensity of monitoring can potentially be perceived by employees as a distrusting attitude of principal towards their willingness to perform the task, which can have the effect of depressing morale in the work place, resulting in lower effort.

Similarly, Chang and Lai (1999) expand Akerlof's social custom model in order to investigate whether more intensive supervision of the employer will induce workers to increase their work effort. They show that two conflicting effects emerge when employers raise the level of monitoring: the "discipline effect" and the "crowding-out" effect. The former reflects employees being induced to work harder to avoid being caught shirking and losing their jobs. The latter leads workers to reduce work effort in the face of increased monitoring that is perceived by workers as evidence of employer distrust. If the crowding-out effect dominates the discipline effect, a rise in monitoring intensity will reduce work effort.

These studies integrate psychological aspects into the economic analysis of the employment relationship, and reveal the importance of considering workers internal motivation in the design of monitoring regimes and incentive systems.

According to Franco et al (2002), worker motivation is influenced by three broad classes of internal influences: (1) goals, motives and values; (2) self-concept and other associated variables such as self-esteem and self-efficacy; and (3) expectations about the relationship between actions and consequences. These personal factors together with the individual worker's technical and intellectual capacity to perform and with the physical resources available to carry out the task result in a specific level of worker performance.

However, worker motivation, besides being a subjective trait of the individual herself, depends also on the work environment and how she interacts with the work environment on the one hand and with the broader societal context on the other. External work environment and the cultural context reflect the internal motivation of the worker, and changes in the external environment also influence his internal motivation (Pasour, 1990; Falgueras-Sorauren, 2000).

According to Frey (1997, 2002) workers' responses to an external intervention (e.g. through imposing tighter monitoring) vary based on their personal factors and their perception of the controlling or supportive nature of that intervention.

If workers perceive that an external intervention is controlling them, they might feel that the principal does not value their competence and involvement at work. Workers' needs for self-determination, competence and autonomy are satisfied to a lesser degree, and, as result, they may react by reducing their work effort. This perception is further magnified the more intense the working relationship between the principal and the agent (Bakerma, 1995) and/or the higher the value the worker attaches to his task. Thus, if this intervention is uniform, those workers who have above-average intrinsic motivation will perceive it even more negatively.

This effect has been empirically supported in the literature by both, psychologists and economists (see Frey and Jegen, 2001 for a complete survey).

## **The Model**

The set-up is a static version of the efficiency wage model in the spirit of Shapiro and Stiglitz (1984). A risk-neutral principal (the government employer, for instance) employs risk-neutral agents (physicians, for instance). The principal cannot observe the agents' work effort, and motivates them through a general compensation contract  $w$ , where  $w$  is the wage. Agents are of two sorts:  $\gamma N$  are opportunistic agents (type 1) and  $(1-\gamma)N$  are highly motivated agents (type 2). Agents experience disutility from working,

and, therefore,  $C(0)=0$  and the marginal cost of working increases with effort,  $C'(e)>0$ , at an increasing rate,  $C''(e)>0$ . To simplify the problem, we consider only two levels of effort,  $e^H > e^L$ . Opportunistic agents dislike working much more than highly motivated agents do, i.e.  $C_1(e^j) > C_2(e^j)$ , with  $j=H,L$ . Such opportunistic agents usually put in low levels of effort,  $e^L$ , at an associated cost of  $C_1(e^L)$  while the motivated workers commit high levels of effort,  $e^H$ , at an associated cost of  $C_2(e^H)$ .

The motivated agents place a high value on diligence and sincerity. They value their work as an end in itself and would like to be perceived as such. Agents in this group like to be trusted by their supervisors to do what is required, and like to be recognized as being responsible for their actions and in meeting the pre-determined goals. These workers value such non-pecuniary benefits as rewards and recognition, but perceive stringent monitoring to be indicative of employers' distrust. Instead of being induced to put in more effort, they tend to react to increased monitoring by reducing their work effort.

Formally, let the total utility of those motivated agents who furnish high-effort at work be expressed in the form of an additively separable function:

$$V_2^H = w + f(R) - g(M) - C_2(e^H) \quad (1)$$

Highly motivated agents value rewards and recognition in a subjective manner so that their utility when put forth high effort increases with  $R$ ,  $f'(R)>0$ , at a decreasing rate,  $f''(R)<0$ . Even in absence of such rewards, motivated agents feel satisfied whenever they comply with their duties at work, i.e.  $f(0) > 0$ .

Following Frey (1993) and Chang and Lai (1999), work morale is posited to fall in response to an increase in monitoring intensity, since motivated agents perceive tight monitoring as indicating that they are not trusted by the principal to perform independently in a satisfactory way. Therefore, the highly motivated worker's marginal



disutility of being controlled increases with Monitoring,  $g'(M) > 0$ , at an increasing rate,  $g''(M) > 0$ .

However, under certain conditions, highly motivated workers might choose to put low effort at work. Their utility would be then

$$V_2^L = \rho(M)w + [(1-\rho(M))b - C_2(e^L)] \quad (2)$$

and they would benefit from exerting low effort at a very low cost. For instance, we can assume that  $C_2(e^L) = 0$ . However, they also face a probability  $(1-\rho)$  of being dismissed if caught shirking and  $b$  is the unemployment benefit that they would receive. The probability of getting caught increases with monitoring, so that  $(1-\rho)$  increases as  $M$  increases. In other words,  $\rho$  is the probability of not being caught and increases as  $M$  decreases.

Therefore, the incentive constraint for a motivated worker to furnish high effort would be  $V_2^H \geq V_2^L$

In other words,

$$w + f(R) - g(M) - C_2(e^H) \geq \rho(M)w + [(1-\rho(M))b] \quad (3)$$

which is equivalent to

$$[(1-\rho(M))(w-b) + f(R) - g(M)] \geq C_2(e^H) \quad (4)$$

that is, the motivated agent will furnish high-effort if the total loss due to shirking – equivalent to the sum of the opportunity cost of shirking  $[(1-\rho(M))(w-b)]$  and the loss of non-pecuniary benefits due to shirking – is greater than the benefit from shirking.

The case of those opportunistic agents is a little different. These agents only care about monetary compensation and their utility is not affected by non-pecuniary benefits. In this case, their utility when they put high effort at work would be

$$V_I^H = w - C_1(e^H) \quad (5)$$

as they do not value non-pecuniary benefits and, besides, they do not perceive monitoring in the subjective manner motivated agents do.

The total utility of such opportunistic agents when they put in low effort at work is expressed as:

$$V_I^L = \rho(M)w + [(1-\rho(M))b - C_1(e^L)] \quad (6)$$

where, again,  $(1-\rho)$  denotes the probability that the agent is dismissed if caught shirking and  $b$  is the unemployment benefit that the agent receives. The probability of getting caught increases with monitoring, so that  $(1-\rho)$  increases as  $M$  increases while  $\rho$ , probability of not being caught, decreases when  $M$  increases.

We are interested in the non-shirking condition that must be fulfilled for the opportunistic workers to not shirk (or put low effort), i.e., for  $V_I^H \geq V_I^L$ . This turns out to be:

$$w - C_1(e^H) \geq \rho(M)w + [(1-\rho(M))b - C_1(e^L)] \quad (7)$$

which is equivalent to:

$$[(1-\rho(M))(w-b)] \geq C_1(e^H) - C_1(e^L) \quad (8)$$

that is, the opportunistic agent will put in high-effort at work if the total loss due to shirking – equivalent to the opportunity cost of shirking  $[(1-\rho(M))(w-b)]$  – is greater than the benefit from shirking.

We now examine the principal's optimization problem. The principal does not observe individual physician's effort, but only observes the total quantity of services produced. Production of health services is posited to be a function of facility's workforce effort, and it is expressed as  $f = f(\bar{e})$  where  $\bar{e}$  denotes the average effort and production increases as average effort increases.

As we are analyzing a problem with discrete effort values, there are only four possible levels of average effort. In other words,

$$\bar{e} = e^H \quad (9)$$

$$\bar{e} = \gamma e^H + (1 - \gamma) e^L \quad (10)$$

$$\bar{e} = \gamma e^L + (1 - \gamma) e^H \quad (11)$$

$$\bar{e} = e^L \quad (12)$$

The principal pays  $Nw$  in terms of wages, where  $N$  denotes the number of agents (physicians) in the facility, and spends  $\mu M$  on monitoring and  $\tau R$  on non-pecuniary rewards (expenditure on certificates, medals, etc.). The principal wants to get the highest average effort from the workforce working at the health care facility at the minimum cost,  $C$ . In doing this, the principal chooses wages,  $w$ , monitoring level,  $M$ , and non-pecuniary rewards  $R$  to solve the following optimization problem:

$$\text{Min } C = Nw + \mu M + \tau R \quad (13)$$

subject to

$$[(1 - \rho(M))(w - b) + f(R) - g(M)] \geq C_2(e^H) \quad (14)$$

$$[(1 - \rho(M))(w - b)] \geq C_1(e^H) - C_1(e^L) \quad (15)$$

By changing wages,  $w$ , monitoring level,  $M$ , and non-pecuniary rewards,  $R$  the principal may affect the solution of this optimization problem, getting a higher or lower average effort from workers at the health care facility. In what follows we study the implications of altering these instruments, and analyze the levels within which the principal may play with them.

If we look at equations (14) and (15), it is possible to see how by increasing wages the principal would increase the number of physicians who put forth high-effort, which is a standard result of efficiency wage literature.

Increasing monitoring intensity, however, has mixed results. On the one hand, increasing monitoring increases the probability that a low-effort agent will be caught and dismissed. Following Frey (1993) and Chang and Lai (1999), we term this the “disciplining effect.” On the other hand, increasing monitoring may be construed by highly motivated agents as a measure of distrust. If  $g(M)$  increases by an amount sufficient to lower the value of the left-hand side of Equation (4), i.e., if it reduces the loss due to shirking, motivated agents will reduce their level of effort. Frey (1993) and Chang and Lai (1999) term this the “crowding-out effect.” It is straightforward to see that if the crowding-out effect outweighs the disciplining effect, a rise in monitoring will reduce effort level, and reduce output.

Consider now a change in non-pecuniary rewards and recognition,  $R$ . Since motivated agents’ valuation of non-pecuniary benefits is positively related to  $R$ , an increase in non-pecuniary rewards will increase  $f(R)$ . In the spirit of Frey (1993), we call this the “retention effect” since it reinforces the incentives for agents in the highly-motivated group to not reduce effort. If the retention effect is strong, in the sense that it outweighs the crowding-out effect, it could provide a useful policy instrument for planners seeking to increase monitoring in order to control the opportunistic workers and yet not lose those already motivated and furnishing high-effort.

We can derive now the range of values within which the principal may move these instruments in order to get the highest average effort from workers. Let’s consider a given pair of values wages,  $w$ , and non-pecuniary rewards,  $R$ . From equation (15), it is possible to establish a lower bound on the level of  $M$ . That is, there is a certain level of monitoring above which opportunistic agents are pushed to work harder. Similarly, from equation (14), there is an upper bound on  $M$ , which it is interpreted as the maximum level of monitoring that motivated agents might bear. This upper and lower bound on  $M$  set a range of values for which equations (14) and (15) are compatible.

Obviously, if the principal had an unlimited budget, he might increase wages,  $w$  to infinity. Such an increase would make highly motivated workers accept higher levels of

Monitoring and would allow to use lower monitoring levels to discipline opportunistic agents. In definitive, in this situation, the upper and lower bounds on monitoring,  $M$  would be expanded and the two groups of agents would put forth the highest effort, i.e. restrictions (14) and (15) would be satisfied simultaneously. Alternatively, the principal might increase non-pecuniary rewards. This would expand the upper bound on the monitoring level accepted by motivated agents.

However, the principal's budget is limited. Therefore, it is not straightforward to get high effort from both types of agents, motivated and opportunistic. As long as the budget decreases, the range of levels of monitoring, among which the principal might choose in order to get high effort from agents, is reduced.

As non-pecuniary rewards are usually cheaper than wages, it would be worth using such rewards (at least for low levels of them) instead of increasing wages to compensate motivated workers for tighter monitoring.

However, it might happen that even using a combination of the three instruments, wages  $w$ , monitoring,  $M$  and non-pecuniary rewards,  $R$ , solutions for the principal's optimization problem lead to  $C^* > B$ , where  $B$  is the fixed Budget. In this case, the principal should try to get the second best average effort level, which might be denoted by either expression (10) or (11), depending on the value of  $\gamma$ .

## **5.- Discussion**

The model discussed above rests on the premise that psychological factors play an important role in determining physician effort in the workplace, and has important implications for the design of incentive packages. If the physician is not sensitive to any implied expression of employer distrust or is not completely bound by conscience, then the relationship between monitoring and shirking is clear, as defined above. However, in any health facility, there always are physicians who are seen to be working hard and are sought after by patients. At the same time, there are physicians who are believed to be shirking on the job, and there is little that the employer seems to be able to do to

catch and punish them. This behavioral heterogeneity requires that monitoring and incentive strategies be such that they regulate the opportunistic employees while sustaining the motivation of those disinclined to shirk. In other words, incentive strategies need to have a strong retention component to balance out the crowding-out effect. These strategies are especially important to be implemented in public health care facilities where regulations are typically uniform and physicians are paid the same salary – even if they have quite different productivity or work morale (Rose-Ackerman, 1996).

We propose, therefore, an incentive structure that consists of a punitive monitoring system accompanied by non-pecuniary rewards. The introduction of monitoring and punishment impose a higher marginal cost on shirking which unequivocally will raise performance of those whose intrinsic motivation is implicitly taken to be constant or to be absent. At the same time, non-pecuniary rewards may counter the negative effect of the punitive monitoring system on those workers intrinsically motivated. This incentive package not only serves to control shirkers by strengthening the discipline effect, but also serves to acknowledge the moral behavior among those not shirking and, hence, sustain their motivation.

One might argue, however, that as long as physicians are driven for altruism and high reputation concerns (Arrow, 1963) the “crowding out effect” would not apply to them. We think that they are likely to respond marginally in an even more negative way to monitoring and regulating, as their “specific variant” of work morale is not recognized.

The results offered in this paper are largely theoretical. However, there is also empirical evidence supporting them in the health care context.

One interesting attempt to do something similar to the incentive regime proposed in this paper is being carried out by the management of the Children’s Hospital in Tbilisi, Georgia. Hospitals in Georgia are state-owned and autonomously managed. Physicians receive a small salary from the hospital management, which basically provides them with a right to practice in that hospital. The hospital management sets prices for

physician services, and the fees so collected are shared between the physician and the hospital. In practice, however, the system works a little differently. Many physicians set their own prices, considerably higher than the hospital prices, and collect this from the patients. Some physicians then pay the hospital its share of collected fees based on hospital rates, while others do not even bother to do this. As a result, patients are paying more for health service than they would have had the system worked as planned, and the hospital receives significantly less than it would have had the system worked properly.

Three major changes were made in order to address these problems when the new management took over the hospital. First, supervision was stepped up considerably, and all physicians had to follow the hospital fee schedule, which was predominantly posted in many places in the facility. Second, the length of the contract for physicians working in the hospital was reduced drastically, from three years for most contracts to six months maximum, and renewal was made subject to a set of criteria, such as number of patients seen, and the amount of fee collections and deposits. And third, an internal competition among physicians was introduced, and a number of performance rewards were instituted for physicians. These included permission and support for attending seminars, workshops and training at preferred locations, preferred hours of work, preferred leave, and above all, publicly-awarded recognition (e.g. through publishing a newsletter directed to hospital staff and patients where those physicians showing good behavior and performance were acknowledged). Within months of taking over, the new management has managed to turn around the health facility. Patients still pay, but only what they are supposed to, the fee schedule is prominently displayed, and the hospital revenues have gone up very significantly.

Another case in point is the experience of Poland with family medicine. Shirking is not reported to be a big problem in the health sector problem, but another kind of opportunistic behavior – the practice of informal payments – is widely observed. Informal payments, i.e., those that the physicians are not authorized to ask for and receive, and the patient not required by law to make, constitute a significant proportion of the total out-of-pocket private payments in health in Poland, and represent the existence of a huge parallel market in the health sector.

The Ministry of Health in Poland established a Task Force in 1993 to address a totally different kind of problem – namely, to find ways and means to improve the delivery of primary care in Poland. The recommendations of this Task Force led to the establishment of the family practice model, which has had interesting implications for informal payments. The 1993 Task Force review recommended, inter alia, a shift to the family medicine model and suggested increasing the professional prestige and status of primary care providers in order to attract the best medical students and physicians. The Task Force also suggested shifting emphasis on health care from treatment of the sick to health promotion and prevention of illnesses, redefining primary health care and rejecting the multi-specialist model in favor of the family physician and ancillary staff. Following the Task Force recommendations, family practice was introduced in Poland and since then, over 10,000 physicians have been trained and are serving as family doctors. A College of Family Doctors has been established, and over time membership in this college has become a matter of prestige and is much sought after.

Surveys have shown that prestige is a big issue for family physicians, who take great pride in their job and in their practice (Chawla et al, 1998). The introduction of family medicine as a specialization certainly seems to have had a positive effect both on perceived prestige of the profession and self-esteem of the physicians in family medicine. Independent reviews and surveys have shown that the incidence of informal payments for health services in Poland is lowest among family physicians (Chawla, 2002).

## **5. Conclusion**

This paper has applied a model of incentives to the problem of physician effort in the workplace, and in doing so has drawn upon the theories of opportunistic behavior as well as on industrial psychology literature. The intuition behind the model is straightforward: employees respond to a set of factors, both economic and psychological, in determining how much effort they would put in their jobs. In



designing incentive schemes for employees, therefore, particularly in cases where monitoring is not easy or is expensive, it is necessary that both set of factors – economic and psychological – are addressed and resolved. This is the main thrust of the paper. Our second conclusion is that non-pecuniary rewards can be effectively used to mitigate the adverse effects of increased monitoring and supervision, particularly for those employees who place a high premium on trust and workplace morale. Balancing monitoring and rewards is not necessarily easy, but we believe that, as Nagin et al (2002) also point out, trust and fairness in dealing with employees play an important role in reducing shirking and other opportunistic behavior.

## **References**

- Akerlof, G. A. (1980): “A Theory of Social Custom, of which unemployment may be one consequence”. *The Quarterly Journal of Economics*, vol. 94, issue 4, June, pp. 749-775.
- Akerlof, G. A. (1982): “Labor Contracts as a partial gift exchange”. *The Quarterly Journal of economics*, vol. 97, issue 4, pp. 543-569.

- Akerlof, G. A. (1984): "Gift Exchange and Efficiency-Wage theory: Four Views". *The American Economic Review*, vol. 74, issue 2, Papers and Proceedings of the Ninety-Sixth Annual Meeting of the American Economic Association, May, pp. 79-83.
- Akerlof, G. A. and Yellen, J. Y. (1987): "Rational models of irrational behavior". *The American Economic Review*, vol. 77, issue 2, May, pp. 137-142.
- Akerlof, G. A. and Kranton, R.E. (2003): "Identity and the Economics of Organizations". Typescrit.
- Arrow, K.J. (1963): "Uncertainty and the welfare economics and medical care". *American Economic Review* 53, pp. 941-973.
- Bakerma, H.G. (1995): "Do Job Executives Work Harder When they are Monitored?" *Kyklos* 48, pp.19-42.
- Beer, M., Bert, S., Paul, R., Lawrence, D., Mills, Q. and Walton, R. E. (1984): *Managing Human Assets*. Macmillan, New York.
- Benabou, R. and Tirole, J (2003). "Intrinsic and Extrinsic Motivation". *Review of Economic Studies* vol 70(3), pp.489-520.
- Besley, T., and Ghatak, M.(2003): "Competition and Incentives with Motivated Agents". Working paper, London School of Economics. November.
- Bewley, T. F. (1995): "A Depressed Labor Market as Explained by Participants". *American Economic Review*, vol. 85, No. 2, pp. 250-254.
- Congleton, R. D. (1991): "The economic role of a work ethic". *Journal of Economic Behavior and Organization*, 15, pp. 365-385.
- Chang, J. and Lai, C. (1999): "Carrots or sticks? A social custom viewpoint on worker effort" *European Journal of political economy*, vol.15., pp. 297-310.

- Chawla, M., Berman, P. and Kawiorska, D. (1998): “ Financing Health Services in Poland: New Evidence on Private Expenditures”. *Health Economics*, 7, pp. 337-346.
- Chawla, M.(2002): “Poland: Informal Payments in Health”. Draft Report. The World Bank. Washington D.C.
- Deci, E. L. (1971): “ Effects of externally mediated rewards on intrinsic motivation”. *Journal of Personality and Social Psychology*, 18, pp. 105-115.
- Deci, E. L. (1975): *Intrinsic motivation*. Plenum Press, New York.
- Deci, E. L., Koestner, R. and Ryan, R.M. (1999): “A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation”. *Psychological Bulletin*, vol. 125, No. 6, pp. 627-668.
- Di Tella, R. and Savedoff, W.(2001). Shining Light in Dark Corners. In Di Tella, R. and Savedoff, W., eds. *Diagnosis Corruption. Fraud in Latin America’s Public Hospitals*. Inter-American Development Bank. Washington D.C.
- Falgueras-Sorauren, I. (2000): “Non-monetary incentives: do people only work for money?”. *Business Ethics Quarterly*, 10 (4).
- Franco, L., Bennett, S. and Kanfer, R. (2002): “Health Sector Reform and Public Sector health worker motivation: a conceptual framework”. *Social Sciences and Medicine*, 54, pp. 1255-1266.
- Francois, P.(2002): “Public Service Motivation as an Argument for Government Provision”. *Journal of Public Economics*,. 78, pp 275-299.
- Frey, B. (1993): “Shirking or work morale? The impact of regulating”. *European Economic Review*, 37, pp. 1523-1532.
- Frey, B. (1997): *Not just for the money: An Economic Theory of Personal Motivation*. Edward Elgar Publishing Company.

- Frey, B.S. and Jegen, R.(2001): "Motivation Crowding Theory: A Survey of Empirical Evidence". Working Paper No.26. Institute for Empirical Research in Economics Working Paper Series. Zurich University.
- Frey, B. and Osterloh, M. (2002): *Successful management by Motivation*. Springer. Swiss Association for Organization and Management.
- Gordon, D.M. (1990): "Who bosses whom? The Intensity of Supervision and the Discipline of Labor". *The American Economic Review*, vol.80, issue 2, May; pp. 28-32.
- Hornby and Sidney, E. (1988): *Motivation and Health service performance*. WHO/EDUC/88-196. World Health Organization. Geneva.
- Kaufman, B.E. (1989): "Models of man in industrial relations research". *Industrial and Labor Relations Review* 43, Oct., 72-88.
- Kruse, D. (1992): "Supervision, working conditions, and the employer size-wage effect". *Industrial Relations*, 31, pp.229-249.
- Leonard, J. S. (1987): "Carrots and Sticks: Pay, Supervision and Turnover". *Journal of Labor Economics*, vol.5, issue 4, part 2, pp. 136-152.
- Lepper, M., Greene, D. and Nisbett, R. (1973): "Undermining Children's Intrinsic Interest with Extrinsic Reward". *Journal of Personality and Social Psychology*, october, 28(1), pp. 129-137.
- Murdock, K.(2002): "Intrinsic Motivation and Optimal Incentive Contract". *Rand Journal of Economics*; 33(4), pp.650-671.
- Nagin, D. S., Rebitzer, J. B., Sanders, S. and Lowell, J. T. (2002): "Monitoring, Motivation, and Management: The Determinants of Opportunistic Behavior in a Field Experiment". *The American Economic Review*, September, pp. 850-873.

- Pasour, E. C. (1990): "External effects and the Work Ethic". *Journal of Finance and Public Choice*, 8 (1), pp. 32-45.
- Rebitzer, J.B. (1995): " Is there any trade-off between supervision and wages? An empirical test of efficiency wage theory". *Journal of Economic Behavior and Organization*, vol.28; pp. 107-129.
- Rose-Ackerman, S. (1996): "Altruism, nonprofits and economic theory". *Journal of Economic Literature*, 34, pp. 701-728.
- Shapiro, Carl and Stiglitz, Joseph E (1984).: "Involuntary Unemployment as a worker Discipline Device". *American Economic Review*, 74. June. 433-444.
- World Bank (2003): *World Development Report 2004: Making Services Work for Poor People*. Washington D.C.
- Yellen, J.L. (1984): "Efficiency Wage Models of Unemployment". *The American Economic Review*, Volume 74, Issue 2, Papers and Proceedings. May, pp 200-205.