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The Crowding-Out of Work Ethics

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Abstract

This paper analyses optimal contracts in a principal-agent model where the agent is intrinsically motivated at the outset and there is an endogenous relationship between the structure of incentive payments and intrinsic motivation (crowding effects). The analysis shows that crowding effects have implications for the optimal contract and that under some conditions the principal can do better without implementing any economic incentives. Furthermore, it is shown that when high-powered incentives diminish intrinsic motivation (crowding-out) the first-best solution in a principal-agent framework is unattainable.

Key words: Agency theory, intrinsic motivation, crowding effects.

JEL–classification: L0, J0, D2

1. Introduction

Non-competitive theory on employment relationship focuses primarily on atomised individuals characterised by a pervasive tendency for shirking. Consequently, the rationale for institutional design and contracts becomes individual opportunism (Alchian and Demsetz, 1972). Sociological and psychological theory focus on other aspects of informal organisations and contracts [see e.g. exchange theory (Blau, 1964), equity theory (Walster et al., 1977) and theories of organisational culture (Wilson, 1989)], and puts more emphasis on job satisfaction (self-esteem, recognition, identity and self-realisation). Akerlof (1982) posits that firms and workers can be thought of as engaging in "gift exchange", where some workers invest more effort than required, in exchange for less pressure on co-workers with lower abilities (norms of reciprocity). For instance such motivations are found in an empirical study on job training programs by Heckman et al., (1996). Akerlof and Yellen (1990) analyse how inequalities in wage rates may be perceived as unjust and thus break down work moral by creating individual dissatisfaction.

Crowding theory in psychology is concerned with the relationship between two motivating forces; intrinsic and external motivation [see e.g. Deci (1975); Deci and Ryan (1985); Staw (1977); Lepper and Green (1978)]. Intrinsic motivation is behavioural motives coming from within a person (inner feelings, moral)[1], while extrinsic motivation represents incentives coming from the outside (e.g. recognition, wages, punishment). External interventions, such as monitoring and supervision, are believed to have significant and systematic effects on preferences (intrinsic motivation). In particular, contingent and monetary rewards (extrinsic motivation) may diminish intrinsic motivation (crowding-out) and thus reduce performance (the hidden cost of reward). Frey (1992, 1993a, 1997) introduces crowding theory to economics and discuss possible motivational consequences arising from pricing and regulation in relation to constitutional design, crime prevention, environmental policy, blood donation and tax policy.

A precondition for crowding-out effects is that individuals are sufficiently intrinsically motivated at the outset (Frey, 1994). The more personal the relationship between principal and agents is, and the more interesting the task is for the agent - in the sense that it would have been performed independent of types of rewards- the more likely are crowding effects. The occurrence of crowding effects also depends on whether chosen regulations and/or incentives are perceived as being controlling by the agent. If extrinsic interventions do not to acknowledge moral behaviour and reduce participation possibilities as well as the degree of self-determination, crowding-out takes place. Rewards contingent

[1]Money income is only one type of motivation, other forces can be the task itself (idealistic or ethical purpose) and professionalism (Dixit, 2000), or a general altruistic motivation to serve the interests of a community (Francois, 2000).

on performance can act as a signal to agents about their competence being low (distrust with respect to past performance) and shift their locus of control. A positive effect of pricing on intrinsic motivation is also possible (crowding-in) if perceived as supportive by the agent (Frey, 1994). The relationship between incentives and work morale is also discussed elsewhere in the literature. Etzioni (1971) states that workers find pecuniary incentives, such as piece rates, alienating, while Kreps (1997) makes the following remark; "I assert that providing extrinsic incentives for workers can be counterproductive, because it may destroy the workers intrinsic motivation, leading to lessened levels of quality-weighted effort and lower net profits for the employer (p. 360)". Gregory (1999) and Simpson (1996) describe situations where the introduction of high-powered incentives crowds-out voluntary contributions[2].

Frey (1993b) focuses on work morale and how regulations in terms of financial payments and supervision may affect shirking incentives. The use of devices such as monitoring and contingent rewards can degrade work morale in this way making them less efficient as a means of influencing behaviour. Such relationships are considered to be particularly relevant for non-repetitive jobs with high discretion, where intuition, creativity and judgement constitute central parts of the job content. Examples could be research and professions like lawyers and physicians. The same may matter for individuals engaged in worthwhile activities that perceive themselves as making financial sacrifices. Examples could be voluntary organisations, non-profit firms, and public organisations with a calling – like health care institutions and hospitals. In such situations even a small amount of regulation may trigger strong crowding-out effects (Frey, 1993b).

There is also evidence suggesting more complex relationships between monetary incentives and work productivity. Homas (1953, 1954) observed a group of young women with fixed wages and absent promotion possibilities, who exceeded minimum work requirements by on average 15%. Baron (1988) refers to survey studies confirming that a large percentage of workers seem motivated at work by something else than financial compensation. 58% responded that they put extra physical or mental effort into the job beyond that which is required and 72 % would continue working even if they were financially comfortable for the rest of their lives. Preston (1989) finds that worker supply labour to non-profit organisations at lower than market wages. Empirical observations also confirm that both the frequency and intensity of pay-for-performance schemes is rather low, although being strongly recommended by economists in general and principal-agent theory in particular (see e.g. Jensen and Murphy, 1990; Stiglitz, 1987).

[2] For more evidence on crowding effects see Barkema (1995), Deci and Ryan (1985) and Frey and Oberholzer Gee (1997) and the references therein. For a critical assessment see Eisenberger and Cameron (1996).

Frey (1993b) considers crowding theory to be particularly relevant for problems analysed by agency theory in economics, since it questions the possibility of control of agents by external intervention. The purpose of this paper is take the approach of Frey a step further by integrating crowding theory into a standard principal-agent model (see e.g. Holmstrom, 1979). We undertake a formal analysis in order to investigate whether crowding effects have an impact on the design of the optimal contract.[3] In particular we want to investigate whether crowding-out effects are relevant or not, since intrinsic motivation, in principle, can be substituted with extrinsic ones? Whether or not a principal should rely completely on agents' intrinsic motivation rather than employing incentive payments? Our analysis is restricted to consider the set of linear contracts, and both the agent and the principal are assumed risk-neutral.

Section 2. The role of crowding effects in the determination of optimal contracts

In the following we apply a standard principal-agent model (see e.g. Holmstrom, 1979) under moral hazard where the principal is only able to observe the workers' output. Consequently, the principal offers the agent a contract based on output, X, being determined by a random state of nature, ε, and the effort of the agent, e, specified as follows;

$$X = e + \varepsilon \tag{1}$$

where $E(\varepsilon)=0$. The set of linear contracts (payment scheme) is described by the following relationship;

$$w(X) = A + bX \tag{2}$$

where A is a fixed payment (constant) while b denotes wages being contingent on output (performance pay). The expected utility function for a risk neutral agent given utility being additive separable in money and effort, and is as follows;

$$E\{U(e,b)\} = E\{w(X)\} - V(e,b) = A + be - V(e,b) \tag{3}$$

where $V(e,b)$ is the cost (disutility) function of effort. This function is supposed to be twice differentiable and continuous. In addition the following assumptions on $V(e,b)$ matter;

$$V_e^{'}(e,b) > 0, \quad V_e^{''}(e,b) > 0, \quad V_{bb}^{''}(e,b) \geq 0, \quad -1 \leq V_{eb}^{''}(e,b) \leq 1 \tag{A1}$$

[3] Frey (1992, 1994) analyses crowding effects, however, his analysis is restricted to agent behaviour and not the issue of optimal contracts.

The two first conditions in A1 correspond to the standard assumptions in principal-agent models, while the third and the fourth conditions are adopted in order to discuss "crowding effects". In general we focus on individuals with initial levels of intrinsic motivation (e.g. work pride or morale) and the presence of the parameter *b* (the degree of performance pay) in the cost function of the agent is supposed to reflect the possibility of crowding effects in relation to intrinsic motivation. Due to the presence of *b* - the share of the wage schedule being contingent upon agent performance - the agent is not indifferent between the same expected financial compensation, ceteris paribus, but have preferences over the structure of the wage schedule itself. To be able to conduct a straightforward evaluation of the implications of possible "crowding effects" we restrict the size of such effects (see the inequalities to the right in A1).

The expected pay-off to a risk-neutral principal becomes,

$$E\{\Pi\} = E\{X - w(X)\} = e(1-b) - A \tag{4}$$

In order to derive an expression for the optimal linear contract we need to describe the optimal behaviour of the agent for any linear wage schedule. This is done by maximising (3) w.r.t. effort, yielding the following expression given an interior solution;

$$\frac{\partial E\{U\}}{\partial e} = E\{U_e^{'}\} = b - V_e^{'}(e^*, b) = 0 \quad ` \tag{5}$$

From (5) it follows that optimal effort is described by the marginal disutility of effort equalising the size of the performance pay parameter. In the cases of (5) not being binding and *b=0*, we assume that optimal effort level equals zero ($b = 0 \Rightarrow e = 0$). An effort level equal to zero can for instance be thought of as a normalised value of effort which coincides with effort in a fixed wage regime. Since *V(e,b)* is strictly convex in *e* (see A1), the second order condition for this problem is satisfied.

Let $e^* = e^*(b)$ denote the agent's optimal effort choice as a function of *b*. By differentiating (5) w.r.t. *b,* we obtain the following expression;

$$\frac{de^*}{db} = \frac{\left(1 - V_{eb}''(e^*, b)\right)}{V_{ee}''(e^*, b)} \tag{6}$$

Eq. (6) describes how optimal work performance relates to the compensation scheme. The first term in numerator of (6) describes the price effect (disciplining effect) already being present in the standard principal-agent model. The second term in the numerator of (6), however, is new and reflects motivational crowding effects, where direction and magnitude is determined by the cross partial derivative of the cost function, $V^{''}_{eb}(e,b)$. Frey (1992; 1994) already identifies this effect, in a different setting, and in the following we denote it as "the second-order crowding effect". If performance pay diminishes agent self-determination or if the disciplining part of the financial compensation scheme is interpreted as a signal of distrust (crowding-out), *e* (effort) and *b* become complements in the cost-function of the agent.[4] From (6) it follows that if $V^{''}_{eb}(e,b) > 0$ then the marginal response in effort due to changes in *b* is weaker compared to the same response in standard principal-agent theory. Consequently, the application of a performance pay scheme becomes less efficient as a means of influencing agent behaviour. It is seen from (6) that agent behaviour is unaffected if the "second order crowding-out effect" is sufficiently strong; $V^{''}_{eb}(e,b) = 1$. Now, the increase in effort that arises via the price effect is exactly offset by the effect that raises the agents' marginal disutility of effort. If, on the other hand, effort and *b* are substitutes in the agent cost function, $V^{''}_{eb}(e,b) < 0$, contingent payments become more efficient as a means of influencing agent behaviour.

Result 1: *A more high-powered incentive contract (higher b) has two effects on effort among intrinsically motivated agents. First, there is a price effect that constitutes a positive incentive for effort. Second, a crowding effect (second-order) being positive if effort and b are complements and negative if effort and b are substitutes in the disutility of effort function.*

We now turn to the characterisation of the optimal linear contract which can be derived by maximising (4) while using (5) and taking into account the (binding) participation constraint;

$$EU(e,b) \geq \overline{U} \tag{7}$$

where $\overline{U}$ is the outside option of the agent. The optimal linear contract must satisfy the following equation:

$$b^* = 1 - \frac{V'_b[e^*(b^*),b^*]}{\frac{de^*}{db}(b^*)} = 1 - \frac{V'_b[e^*(b^*),b^*]V_{ee}''[e^*(b^*),b^*]}{1 - V_{eb}''[e^*(b^*),b^*]} \tag{8}$$

[4] To put it another way, complementarity implies that the marginal disutility of effort increases with a more high-powered renumeration sheceme, while the opposite relationship matters if b and e are substitutes.

where the second order condition for the principals' problem is;

$$\frac{d^2e^*}{db^2} - V''_{ee}\left(\frac{de^*}{db}\right)^2 - 2V''_{eb}\frac{de^*}{db} - V''_{bb} < 0 \tag{9}$$

Following standard procedures in principal-agent analyses, we consider situations where (9) is satisfied, i.e. that we have an internal and unique value of *b* as a solution to the principal's problem of maximising the expected utility. Furthermore, the benchmark case will in the following be the standard principal-agent model given risk-neutrality and linear contracts. The optimal financial compensation being contingent on work performance, *b*, is to equal the expected marginal productivity of the agent (equal to *1*) under these assumptions. The same conclusion arises in our model if $V'_b(e,b)=0 \Rightarrow V''_{eb}(e,b)=0$ (see 6 and 8). Consequently, the second term on the right hand side of (8) introduces an additional effect relatively to the standard model, an effect ensuring that the relationship between the principal and the agent is not regulated by price alone.

Consider now the case where $V'_b > 0$. The first order derivative of $V(e,b)$ w.r.t. b will in the following be denoted as "first-order crowding effects" to distinguish them from "second-order crowding effects". Additionally, let us now assume that $0 < V''_{eb}(e^*,b^*) < 1$, which means that the increase in agent effort in response to a higher *b* is weaker than the same effect in the standard principal-agent model. From (8) it now follows that $b^* < 1$. The presence of motivational crowding-out induces a downward adjustment in *b*. This matters in spite of the crowding effect being substituted by the positive price effect (extrinsic motivation). Consequently the presence of crowding-out effects does represent a cost for the principal in our model. As $V''_{eb}(e,b) \rightarrow 1$, agent behaviour becomes increasingly insensitive to changes in *b* (see 6), and from (8) it follows that both b^* and effort now approaches *0*.

We now turn to the case with negative "first-order crowding effects"; $V'_b < 0$ (crowding-in). A natural implication will now be that effort and motivation becomes substitutes in the cost function of effort; $V''_{eb} < 0$. If so, it follows from (8) that *b* now is always higher than *1*. A "high-powered" incentive system now adds utility to the agent (e.g. if the intervention is corresponding to the agents' personal conviction) which again reduces the financial compensation needed to make the agents' participation constraint binding.

An illuminating case occurs if "second-order crowding effects" are absent ($V_{eb}^{''}=0$). Now, the expression describing the optimal response of the agent (see 6) coincides with the same expression for the standard principal-agent model. However, as seen from (8), the optimal size of the performance-pay parameter, b^*, is still lower than *1*. Finally, a somewhat less realistic case occur with negative "second order crowding effects" ($V_{eb}^{''}<0$) while keeping the assumption of $V_b^{'}>0$. From (6) it is now observed that agent effort is very responsive to changes in *b*, even though b^* remains less than *1*.

The conclusions arrived at so far stress the importance of the sign and magnitude of $V_b^{'}$. A key finding of principal-agent theory for a risk-averse agent is the presence of a trade-off between incentives and risk. In our model, a different trade-off is identified, now between incentives and motivation. The presence of "first-order crowding effects" are essential in inducing changes in the optimal contract relatively to the one that matters for the standard principal-agent model, and together with "second–order crowding effects" it determines the actual structure of the contract. A performance pay scheme, in our model, creates disutility or adds utility on behalf of the agent, which again have financial implications via the participation constraint. In this way, choosing a pay-performance scheme, will in itself represent costs or benefits for the principal. "Second-order crowding effects" deflate or inflate these costs/benefits, depending on how responsive agent behaviour is to changes in *b*.

Result 2: *The presence of first-order crowding effects becomes a necessary condition for motivational crowding effects to have implications for the optimal linear contract.*

Result 3*. Motivational crowding-out, defined as* $V_b^{'}>0$ *and* $0\le V_{eb}^{''}<1$*, yields an optimal linear contract for which 0<b<1, while motivational crowding-in, defined as* $V_b^{'}<0$ *and* $-1<V_{eb}^{''}\le 0$*, yields an optimal linear contract for which b>1.*

It is also possible to identify situations for which it becomes optimal for the principal to abstain from contingent economic incentives and rather rely completely on intrinsic motivation (a fixed wage contract). This will be the case if the first-order condition for agent behaviour (see 5) is not binding, e.g. if the costs for the principal in providing positive economic incentives for a small amount of effort is discontinuously higher than the expected loss from abstaining from the same incentives. The same conclusion matters for the case of $V_{eb}^{''}=1$ and $V_b^{'}>0$. Now, agent behaviour is insensitive to changes in *b* since the "second-order crowding-out effect" exactly offsets the price-effect (disciplining effect). Consequently, the only effect arising from a positive *b* is an increase in the demand for the overall financial compensation needed to persuade the agent to participate. Evidently, the optimal level of *b* under such assumptions must be zero.

An example

In the following we present a numerical version of the model by using a quadratic specification of the disutility function of effort, being of the following type;

$$V(e,b) = \frac{1}{2}\alpha e^2 + \frac{1}{2}\beta b^2 + \gamma eb \tag{10}$$

where $\alpha > 0, \beta \geq 0$. (A2)

The parameter γ in (10) determines the cross partial derivative of the disutility function ("second order crowding effects"), while α and β are the second order derivatives of effort and *b*, respectively. By following the same procedures as above, the following expressions which yields explicit solutions for optimal *e* and *b* can be derived:

$$b^* = \frac{(1-\gamma)}{(1-\gamma)(1+\gamma)+\alpha\beta} = \frac{1}{1+\gamma+\frac{\alpha\beta}{1-\gamma}} \tag{11}$$

$$e^* = \frac{b^*}{\alpha}(1-\gamma) = \frac{(1-\gamma)^2}{\alpha\left[(1-\gamma)(1+\gamma)+\alpha\beta\right]} \tag{12}$$

$$\frac{\partial e^*}{\partial b^*} = \frac{1-\gamma}{\alpha} \tag{13}$$

(11) characterises the optimal linear contract, (12) decides the agent optimal effort and (13) shows the agent's optimal response to changes in *b*. We observe that all three expressions are fully determined by the three parameters present in the quadratic disutility function of effort. The second order conditions for the problem of the agent and the principal are, respectively;

$$\alpha > 0 \tag{14}$$

$$(1-\gamma)(1+\gamma)+\alpha\beta = 1-\gamma^2+\alpha\beta > 0 \tag{15}$$

It follows from (A2) that (14) is always satisfied while (15) is satisfied if the absolute value of γ is "not too high" relative to the product of α and β. In order to characterise the solution further we look into three special cases; $\gamma=-1$, $\gamma=0$ and $\gamma=1$, which yield the following expressions for (11), (12) and (13);

I) $\gamma = -1 \quad \Rightarrow \quad b^* = \frac{2}{\alpha\beta} > 0; \qquad e^* = \frac{2}{\alpha^2\beta} > 0; \qquad \frac{\partial e^*}{\partial b^*} = \frac{2}{\alpha} > 0.$

II) $\gamma = 0 \Rightarrow b^* = \dfrac{1}{1+\alpha\beta} < 1; \qquad e^* = \dfrac{1}{\alpha(1+\alpha\beta)} > 0; \qquad \dfrac{\partial e^*}{\partial b^*} = \dfrac{1}{\alpha} > 0.$ (16)

III) $\gamma = 1 \Rightarrow b^* = 0; \qquad e^* = 0; \qquad \dfrac{\partial e^*}{\partial b^*} = 0.$

Case (II) in (16) represents a situation where "second order crowding effects" are absent, in the sense that the agent now responds to changes in *b* in exactly the same way as in the standard principal-agent model (a price effect, only). In spite of this, we observe that $b^*<1$, a result that arises because of the "first order crowding effect" evaluated in equilibrium. For case (II) this effect is as follows;

$$V_b^{'}(e^*, b^*) = \frac{\beta}{1+\alpha\beta} \tag{17}$$

From (17) we observe that $\beta>0$ secures a positive "first-order crowding effect" which again means the presence of a crowding-out effect, which ensures a modification of the optimal incentive contract. If $\beta=0 \Rightarrow V_b^{'}=0$ in (17), and from (II) we now observe that $b^*=1$, which again is the result arrived at in the standard principal-agent model. In case (III) we have a situation characterised by a "second-order crowding-out effect" being strong enough to make the agent unresponsive to any changes in *b*. In addition, the "first-order crowding effect" is always zero, consequently $b^*=0$. In case (I), on the other hand, we have assumed a "second order crowding-in effect". However, as seen from (I), b^* is not necessarily higher than 1. Again, the reason lies with the sign of the "first-order crowding-effect" in equilibrium. A necessary condition for $V_b^{'}<0$ (first-order crowding-in effect) in case (I) is that $2 > \alpha\beta$. If so, it follows directly from (I) that $b^*>1$. If not, we have a situation with a "second-order crowding-in effect" and a "first-order crowding out effect" which yields $b^*<1$. It is also possible to reach conclusions as concerning intermediate cases. For $0<\gamma<1$ ("second-order crowding-out effect"), it now follows from (11) that $0<b^*<1$. For this case, we also have a "first order crowding-out effect", i.e. $V_b^{'}>0$, irrespective of β being positive or equal to zero.

Even though we here move from one the restrictions made in (A1), let us finally consider the situation characterised by an extremely strong "second-order crowding-out effect" defined by $V_{eb}^{''} = \gamma > 1$. Now agent effort decreases in response to a more "high-powered" incentive scheme (see 13). For "high values" of β when γ is close to 1, the second order condition (see 15) will be satisfied, and from (11) and (12) it follows that $b^*<0$ and $e^*>0$ in equilibrium. This result is rather awkward but arises because the "first-order effect " determining a "crowding-in effect" ($V_b^{'} < 0$) is dominated by the "second-order crowding-out effect"[5]. Consequently, it becomes optimal for the principal to set the parameter *b* very low (negative). $b^{*}<0$ implies a contract where the agent receives a high fixed payment, *A*, but have to pay the principal more than her marginal productivity of effort.

Section 3. A welfare analysis

We already know that for the standard model where the assumption of risk-neutrality holds, the first-best contract coincides with the optimal contract. In order to derive the first-best contract in the presence of crowding effects, we start out by defining the social welfare function, *W(e,b)*, as;

$$W(e,b) = e - V(e,b) \tag{18}$$

The first-best solution w.r.t. *e* and *b* becomes;

$$\frac{\partial W(e,b)}{\partial e} = 1 - V'_e(\tilde{e},\tilde{b}) = 0 \quad \text{and} \quad \frac{\partial W(e,b)}{\partial b} = -V_b'(\tilde{e},\tilde{b}) = 0 \tag{19}$$

where $\tilde{e}$ and $\tilde{b}$ denote the first-best solutions. Assuming "first-order crowding-out"($V_b' > 0$) for all positive values of *b*, it follows that social welfare, for the optimal value of *e*, will be maximised for non-positive values of the parameter *b*. If we restrict ourselves to non-negative *b*'s, $\tilde{b} = 0$ which implies that the first-best solution is different from the optimal contract. In fact, the first-best solution is not attainable in our model as long as motivational crowding-out effects are at work, and can only be reached by leaving the principle of delegation in the principal-agent framework - either in terms of i) "selling the store" or ii) "the principal doing the task".

Result 4*: Given motivational crowding-out a first-best solution is now longer attainable unless the principle of delegation is ended.*

The conclusion arrived at as concerning welfare also provide insights for the situation where observed output is a joint function of the unobserved effort of many agents (moral hazard in teams). Holmstrom (1982) shows that in these situations there exists no differentiable wage contract that generates an

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[5] The sign of "the first order effect" is easily seen by using (11) and (12) and writing V_b' as:

$$V_b' = \frac{1-\gamma}{\alpha(1-\gamma^2+\alpha\beta)}\left(1-\gamma^2+\alpha\beta+\gamma-1\right) < 0 \text{ which holds when } \gamma > 1.$$

efficient Nash equilibrium as long as the budget constraint is balanced. However, by distributing income amongst the agents combined with a collective penalty, production becomes efficient. The use of collective penalties, however, may violate general notions of justice in most societies, and can in this perspective be expected to induce motivational crowding-out if agents are intrinsically motivated. If so, the optimal reward scheme suggested for teams may still induce inefficient outcomes.

Section 4. Conclusions

The literature on agency problems is not concerned with agents being intrinsically motivated and/or ignores the possibility of work performance being negatively influenced by the performance scheme itself. Psychologists, on the other hand, focus on the role of intrinsic motivation and the possibility of motivational crowding-out to occur in response to external interventions (monitoring, supervision, and pay performance schemes) if perceived as controlling. Pricing and regulation may send a signal from the principal to the agent that their relationship is one of market exchange that again may cause the agent to take advantage of the opportunities presented to him (Frey, 1997). The introduction of extrinsic incentives may shift the locus of control from moral values, such as thrust and obligation, to the external source that now influence on behaviour. In this paper such relationships are focused at and we have assumed an endogenous relationship between incentives and the "power" of the devices intended to reduce shirking.

The key finding of this work is that crowding-out effects in general will reduce the effectiveness of incentives schemes, and that the optimal contract in this case will be characterised by the agent receiving less than his marginally productivity of effort. For intrinsically motivated agents, the use of any performance pay schemes can in principle make the principal worse off since substituting intrinsic motivation with extrinsic ones is costly for the principal. Other works on incentives points to risk preferences, monitoring costs, and the inability to measure more than one job dimension as explanations for why performance pay systems are not so frequently observed in organisations. This paper comes up with an additional explanation – the possibility of motivational crowding-out. Even though we might be thought of as tendentious, we have chosen to call this mechanism "the crowding-out of work ethics". Furthermore, our analysis shows that the first-best solution in general is not attainable when crowding-out effects are at work. One way of reaching the first-best solution would be to end the relationship of delegation. It also seems reasonable that the presence of intrinsic motivation and the strength of crowding effects tend to be idiosyncratic. This again suggests that i), a principal should not intervene on a uniform basis if delegating independent tasks to several agents, and ii) that the implementation of various performance pay schemes most likely will create selection effects among agents.

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