



# The tenuous relationship between effort and performance pay<sup>☆</sup>



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## ABSTRACT

When an agent is offered performance related pay, the incentive effect is not only determined by the shape of the incentive contract, but also by the probability of contract enforcement. We show that weaker enforcement may reduce the agent's effort, but lead to higher-powered incentive contracts. This creates a seemingly negative relationship between effort and performance pay.

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## 1. Introduction

The last two decades have seen a strong growth in the use of performance related pay. An increasing fraction of jobs explicitly pays workers for their performance, using bonuses, commissions or some other kinds of merit pay (see Lemieux et al., 2009). At the same time there seems to be an increase in complaints and even lawsuits over unpaid bonuses.<sup>1</sup> As a recent example, 104 bankers in London were suing Dresdner Kleinwort and Commerzbank for \$66 million worth of unpaid bonuses in the biggest case of its kind in the UK.<sup>2</sup> Also in the public sector, where so-called new public management (NPM) reforms have introduced performance related pay in a wide set of public service jobs, non-credible incentive pay is an issue. According to OECD (2004) and Dahlström and Lapuente (2010), the lack of credibility is an important obstacle to effective incentive pay in the public sector, where governments are tempted to modify a given incentive system ex post and renege on promises in order to pursue other political goals.

These two trends — more use of performance related pay and complaints about unpaid or non-credible bonuses — coincide with what

seems to be an increasing skepticism over what performance related pay actually can achieve. Standard economic models that predict a positive relationship between effort and performance pay are challenged by empirical work suggesting that performance pay mitigates motivation and reduces effort (see e.g. surveys by Weibel et al., 2010; Frey and Jegen, 2001).

In this paper we show that these phenomena may be closely related. Uncertainty over bonus payments or weaker enforcement of bonus contracts, may lead to higher bonuses and lower effort, creating a negative equilibrium relationship between performance pay and effort. The relationship that we propose contrasts with the standard explanation based on motivation crowding out, in which non-monetary intrinsic motivation is the essential factor. Higher monetary rewards may there reduce intrinsic motivation to such an extent that effort is reduced.<sup>3</sup> We show that variations in enforcement probability can have similar effects as variations in intrinsic motivation, and that the former can be an alternative explanation for a negative association between performance pay and effort.

With “enforcement probability” we here mean the probability that an employee who is entitled to a bonus actually receives the bonus. There are a number of reasons why the employee may not be paid as promised. If the incentive contract is incomplete, the employer may deliberately choose not to honor the contract hoping that the court

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<sup>1</sup> See e.g. Alexandra Carn in Financial World, 2006–07, and Howard Meyers in New York Law Journal, June 27, 2008.

<sup>2</sup> See e.g. Financial Times, January 25, 2012.

<sup>3</sup> Recent papers show how the structure of monetary rewards may affect agents' perception of their tasks or own abilities, or undermine incentives for social esteem (see, respectively, Bénabou and Tirole, 2003, 2006; Ellingsen and Johannesson, 2008). See also Frey and Jegen (2001) for a review of previous literature on motivation crowding out.

will not be able to enforce it. The employer may also provide discretionary bonuses, where the bonus is paid at the employer's discretion and the employee is not fully protected by a legally enforceable contract. Finally, there may be more or less unexpected contingencies that arise during the employment relationship that make it costly, or even impossible, for the employer to pay the bonus as promised.<sup>4</sup>

In order to capture some important implications of variations in enforcement probability in a simple way, we analyze a moral hazard model where a principal must provide an agent with incentives to exert effort, and where the incentive contract is enforced with a probability  $v < 1$ . Our modeling set-up can account for both legal and non-legal, or informal, enforcement mechanisms. With legal enforcement,  $v$  is the probability that the court can verify performance and thus enforce the contract. With informal enforcement,  $v$  can be seen as the probability that the principal will be socially or politically committed to honor the contract.

It is natural to consider the probability of enforcement as a variable rather than as an absolutely fixed parameter. Generally, the complexity of a transaction, the strength of the enforcement institutions and the practice of legal courts are factors that affect legal enforcement (see e.g. Clague et al., 1999; Djankov et al., 2003).<sup>5</sup> Also, informal contract enforcement, such as the environments for social enforcement, may vary. Exogenous variations occur naturally across countries and industries, but can also affect a given contractual relationship via legal reforms, changes in legal practice, standardization of industry contracts, changes in (labor) law or other institutional or organizational changes (see MacLeod, 2011, for a discussion).

In this paper, we show how exogenous variations in enforcement probability affect both incentive design and effort. Clearly, a weaker probability will, all else equal, reduce the employee's effort, because the expected bonus decreases. But weaker enforcement may also lead to higher-powered incentive contracts, although at the outset one might expect the opposite. No incentive contract can be implemented in a situation where the principal certainly won't pay. And high-powered incentives can certainly be enforced if the contract is honored for sure. Also, risk aversion on the part of the agent can make it quite costly for the principal to offer incentives where very high bonuses are paid with low probability, as the agent must be compensated for the high risk associated with such schemes. However, it turns out that on the margin, the incentive intensity of the contract can be negatively related to the probability of enforcement under quite standard assumptions. The reason is that a reduction of the enforcement probability does not only reduce effort, but also reduces expected wage costs per unit of effort, since the probability that the principal actually has to pay as promised decreases. This can make the principal offer higher-powered incentives which increase effort, but not necessarily up to the level it was prior to the change in enforcement probability.

We adopt the classical model on risk sharing vs. incentives, and show that when enforcement is probabilistic, then under certain conditions contractual incentive intensity and effort are (spuriously) negatively related. We also point out that under risk neutrality and limited liability, effort may be completely independent of contractual incentives (due to contractual incentives and enforcement then being perfect substitutes). The negative relationship is a "false crowding out effect" since total monetary incentives, which is the product of the enforcement probability and contractual incentives, is positively related to effort.

<sup>4</sup> In the Dresdner Kleinwort/Commerzbank case, the loss of 6.5 billion euros made the bank unwilling to pay the bonuses. In the aftermath of the financial crisis one has also seen examples where CEOs give up their bonuses after pressure from stakeholders or politicians, e.g. the case of Royal Bank of Scotland, see Financial Times January 30, 2012.

<sup>5</sup> For contracting parties these may constitute exogenous variations. But one can also think of the enforcement probability as an endogenous variable, since the contracting parties' effort in writing a contract that describes a job's tasks and operational performance metrics may also affect this probability (see Kvaløy and Olsen, 2009). In this paper, however, we abstract from endogenous verifiability, and treat enforcement as an exogenous variable.

But since the enforcement probability does not show up in the incentive contract, it *appears* that incentives and effort are negatively related.

This result has an important empirical implication: When observing a negative relationship between performance pay and effort, one has to control for the probability that incentive contracts are actually honored. If not, one may wrongfully infer that monetary incentives crowd out non-monetary motivation. Controlling for enforcement probability is quite easy in experimental work. With field data, however, this is much more of a challenge. Take the empirical work on New Public Management (NPM) as an example. NPM describes reforms in the public sector that are characterized by an emphasis on output control, performance related pay and introduction of market mechanisms. Scholars argue that NPM undermines – or crowds out – intrinsic motivation and thus the effort of public servants, see e.g. Weibel et al. (2010); Perry et al. (2009). But if NPM actually undermines effort (which of course is debatable, see Stazyk, 2010), would this necessarily come from crowding out of intrinsic motivation? Important aims of NPM include decentralization of management authority, more discretion and flexibility, less bureaucracy and less rules. These institutional changes may affect the enforcement environment. Indeed, OECD (2004) argues that weak enforcement and implementation problems are one of the key challenges for the introduction of pay for performance schemes in the public sector.<sup>6</sup>

Another example is the puzzling cross country relationship between wage dispersion and productivity. Scandinavia, for instance, is known for a combination of high productivity and compressed wages (and thus lower powered incentives, *cet. par*). There may be a number of institutional explanations for this relationship (see Barth et al., 2014), our model offers a complementary one: countries with high productivity and seemingly low-powered incentives may have stronger enforcement institutions and thus more credible incentives.

The paper is organized as follows. In Section 2 we discuss related literature. In Section 3 we present the basic model and study variations in enforcement probability under limited liability and risk aversion, respectively. Section 4 concludes.

## 2. Related literature

A contribution of the paper is to consider probabilistic enforcement in an otherwise standard moral hazard model with risk aversion or limited liability. In the classic moral hazard models (e.g. Holmström, 1979; Innes, 1990), perfect enforcement is assumed, while in models of incomplete contracting, it is commonly assumed that contracting is prohibitively costly so that legal enforcement is impossible (starting with Grossman and Hart, 1986). A literature has thus evolved investigating the feasibility of performance pay schemes in situations where there is no scope for legal enforcement, see e.g. Levin (2003) on relational contracts, and MacLeod (2003) on subjective performance evaluation. However, *imperfect* legal enforcement (rather than no legal enforcement) is increasingly recognized as an important ingredient in models of contractual relationships. Some papers focus on the relationship between ex post evidence disclosure and enforceability (Ishiguro, 2002; Bull and Watson, 2004), while others focus on the relationship between ex ante contracting and enforceability (Battigalli and Maggi, 2002; Schwartz and Watson, 2004; Shavell, 2006). There is also a growing literature on the interaction between legal imperfect enforcement and informal (relational) enforcement, see Sobel (2006), MacLeod (2007), Battigalli and Maggi (2008), Kvaløy and Olsen (2009, 2012) and

<sup>6</sup> Dahlström and Lapuente (2010) argue that lower enforcement in the public sector leads to *less use of* performance pay, and provide some evidence that pay for performance schemes are more frequently used in countries where the credibility of incentives presumably is higher. In contrast, we point out that the *magnitude – or incentive intensity –* of a given performance pay scheme may actually increase in order to compensate for lower enforcement.

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