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Hidden benefits of reward: A field experiment on motivation and monetary incentives



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ABSTRACT

We conducted a field experiment in a controlled work environment to investigate the effect of motivational talk and its interaction with monetary incentives. We find that motivational talk improves performance only when accompanied by performance pay. Moreover, performance pay reduces performance unless it is accompanied by motivational talk. These effects also carry over to the quality of work. Performance pay alone leads to more mistakes. Adding motivational talk makes the difference. In treatments with performance pay, motivational talk increases output by about 20 percent and reduces the ratio of mistakes by more than 40 percent.

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1. Introduction

Monetary rewards can sometimes induce worse performance. Psychologists refer to this phenomenon as a "hidden cost of reward:" performance pay crowds out the workers' intrinsic motivation, in particular by undermining workers' confidence in their own abilities or in the value of the rewarded task (Deci, 1975; Lepper and Greene, 1978). But intrinsic motivation is not only affected by monetary rewards. Firms spend resources in order to facilitate and evoke the intrinsic motivation of their workforce, e.g., by paying and developing managers and leaders with motivational skills. So a central question is, will performance pay undermine a leader's effort in motivating her workers? Or could monetary incentives instead complement and enhance the effect of a leader's motivational efforts?

Theory does not provide a clear answer to this. One conjecture is that, when performance pay undermines intrinsic motivation, it will also undermine a leader's attempt to evoke the workers' intrinsic motivation. But recent theoretical work shows that crowding out can be due to some informational asymmetries. If agents are uncertain about their own ability, the

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¹ A seminal contribution is Deci (1971), who shows that some tasks may have own inherent rewards, making external monetary rewards unnecessary or even detrimental to effort. Using controlled laboratory and field experiments, economists have demonstrated negative effects of monetary incentives in a variety of settings; see Frey and Oberholzer-Gee (1997), Gneezy and Rustichini (2000a,b), Bohnet et al. (2001), Fehr and Rockenbach (2003), and Pokorny (2008). See also Gneezy et al. (2011) for a nice review of this literature.

² This is well established in the psychological and organizational literature, see., e.g., Gagné and Deci (2005) for an overview. In this paper, we refer to "intrinsic motivation" as any motivation that does not come from external rewards such as money and grades.

³ See, e.g., Sims (1998) on management training and leadership development.

value of the task, or the character of the principal, then material incentives alone might create a negative signal that lowers the agents' intrinsic motivation (Bénabou and Tirole, 2003, 2006; Ellingsen and Johannesson, 2008).⁴ An implication is that, if the information asymmetry is resolved, performance pay improves performance rather than backfires. Related to this, Ellingsen and Johannesson (2008) remark that the negative signaling effect of material incentives might not extend to a situation where the principal has multiple signals available. Our conjecture is that motivational efforts by a leader telling her employees how diligent they are and how important their work is, can serve as such an extra signal, which potentially changes the perception of performance pay.

In this paper, we present results from a field experiment designed to investigate the interaction between performance pay and motivational efforts. We focus on "motivational talk," words that potentially enhance workers' intrinsic motivation, leading to extra effort. On behalf of a research group at the University of Bonn, we hired students to enter data from ice hockey game reports into a database. The students, who were unaware of their participation in an experiment, were randomly assigned to one out of four treatments: with or without performance pay and with or without motivational talk. In treatments with performance pay, subjects received a small piece rate (10 euro cents) on top of a fixed payment (20 euro) for each game report they were able to enter into the database. In treatments with motivational talk, subjects were exposed to simple motivational sentences in addition to a plain explanation of the task they were about to do.

We find that motivational talk significantly improves performance only when accompanied by performance pay. Moreover, performance pay reduces performance unless it is accompanied by motivational talk. This also carries over to the quality of work. Performance pay alone leads to more mistakes. Adding motivational talk, however, makes the difference. Although subjects were not rewarded for quality, performance pay has a positive effect on quality if it is accompanied by motivational talk. Hence, we find what we can call a hidden benefit of monetary rewards: complementarity between performance pay and motivational talk. The effects are strong. In treatments with performance pay, motivational talk increases output by about 20 percent and reduces the ratio of mistakes by more than 40 percent.

Related literature: While economists have investigated motivation primarily through the lens of monetary incentives, psychologists have been more interested in the effect of non-monetary motivators such as recognition, attention, and verbal feedback. An early lab experiment is (Deci, 1971) showing that provision of praise increases students' willingness to work on a puzzle. Cameron and Pierce (1994) provide a survey of the subsequent lab-experimental literature. Stajkovic and Luthans (2003) give an overview of experimental field studies on performance-dependent recognition and report strong, positive effects in a variety of workplace contexts. A more recent paper is Grant and Gino (2010), who study experimentally how a manager's verbal expression of gratitude affects employees' effort. In the economic literature, Kosfeld and Neckermann (2011) and Bradler et al. (2013) use field experiments to investigate how social recognition affects employee performance. Furthermore, Eriksson and Villeval (2012) investigate how a costly symbolic reward to express respect after observing effort can be used by the employer to establish a long term employer–employee relationship. All find substantial positive effects.⁵

Our paper differs from this literature in two respects: First, we focus on non-contingent verbal motivation prior to work instead of performance feedback and contingent non-monetary rewards. In this respect, our paper is more related to a few papers investigating the motivational effect of a job's meaning, such as Ariely et al. (2008) who find in a lab experiment that subjects' reservation wage depends on the perceived meaning of the task, and Grant (2008) who finds that fund-raising callers increase their performance when they receive positive information about the meaning of their job. Second, we are particularly interested in the interaction between verbal motivation and monetary incentives, which to our knowledge has not been systematically studied.

Closest to us are two recent working papers by Kosfeld et al. (2014) and Antonakis et al. (2014). Kosfeld et al. study in a field experiment how workers' perceived meaning of a job interacts with monetary incentives. Half of the workers are informed that their job is important while half are told that their job has no relevance. They find strong effects of meaning, but no interaction effect with monetary incentives. Antonakis et al. investigate how a charismatic motivational speech affects work effort in a fund-raising campaign. They find that the charismatic speech is almost as efficient as a piece rate, but they do not study the interaction between the piece rate and the motivational speech.

On a more general level, our paper is also related to the experimental literature on communication. However, this literature has mainly focused on how communication can help resolve coordination problems and social dilemmas, see Ellingsen and Johannesson (2004) and Charness and Dufwenberg (2006). Closer to our paper are Brandts and Cooper (2007) and Brandts et al. (2014) who study how leaders can use both monetary incentives and communication in order to help employees coordinate on a more efficient equilibrium. See also Noussair and Tucker (2005) who show in a public good game that combining monetary punishments and social sanctions through communication is more effective than either system alone, and in a similar spirit Andrighetto et al. (2013) who find that the communication of norms complements monetary sanctions.

While the theoretical literature on intrinsic motivation and crowding out (cited above) provides some possible implications for the effect of non-monetary motivation, there are only a few theoretical papers that explicitly address the optimal interaction between non-monetary motivation and monetary rewards. Marino and Zábojník (2008) study the trade-off between work-related perks and incentive provision, and Dur et al. (2010) analyze how attention paid by the principal to the agent affects optimal

⁴ A compensation scheme may also signal a social norm, which the agent might prefer to follow (Sliwka, 2007).

⁵ In addition to the experimental literature, there is also a large body of literature on organizational behavior that uses survey data in order to investigate employees' motivation. Some report a positive relationship between intrinsic motivation and performance pay, see, e.g., Babakus et al. (1996), Baldauf et al. (2002), Miao and Evans (2007), and DelVecchio and Wagner (2011) who find that more incentive pay leads to higher levels of intrinsic motivation among sales people.

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