

# Relative rewards within team-based compensation <sup>☆</sup>

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## Abstract

How to design compensation schemes to motivate team members appears to be one of the most challenging problems in the economic analysis of labour provision. We shed light on this issue by experimentally investigating team-based compensations with and without bonuses awarded to the highest contributors in teams.

A purely team-based compensation scheme induces agents to voluntarily cooperate while introducing an additional relative reward increases effort and efficiency only when the bonus is substantial. In this case, however, the data suggests that tournament competition crowds out voluntary cooperation within a team. © 2007 Elsevier B.V. All rights reserved.

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## 1. Introduction

Teamwork is increasingly seen as an appropriate structure to organise various labour environments (Beyerlein, 2000; Mueller et al., 2000; Prat, 2002; Zwick, 2004; Van Hootegem et al., 2005). The suitable provision of incentives for teams, however, appears to be one of the most challenging tasks in labour economics (Main et al., 1993; Dematteo et al., 1998; Hamilton et al., 2003). In general wage contracts of teams are not conditioned on individual contributions

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(as it is the case in piece rate contracts) because contributions can neither be (easily) disentangled nor verified before a court. This is one of the reasons why team members are often rewarded according to the output of the team as a whole. Another purpose is to encourage cooperative behaviour in the sense that individual team members strive for the best outcome of the whole team. From a strategic point of view, however, such a scheme provides considerable free-riding incentives, which might lead to inefficient effort levels (see, for example, Alchian and Demsetz, 1972; Newhouse, 1973; Holmström, 1982; Hansen, 1997).

An intuitive approach to reduce the severity of free-riding incentives in teams is to promise *relative rewards* to the best individual performers in the team (Heneman and Von Hippel, 1995). In practice relative rewards within teams often take the form of bonuses<sup>2</sup> (for example, for the “employee of the month”) or promotions which imply higher salaries. One reason why relative rewards are so popular stems from the fact that output needs only to be measured *relatively* which constitutes a big advantage when *absolutely* measuring individual outputs is prohibitively costly. Even if the individual contributions of team members are not verifiable to a third party, the employer can commit himself to a relative incentive scheme. The commitment is credible as long as the individual (relative) outputs are observable (for example by the team leader) and the act of actually transferring the ex-ante promised relative rewards is verifiable (for example, before a court).<sup>3</sup> Relative reward schemes that induce competition among team members for positions in a ranking are also referred to as tournaments (Lazear and Rosen, 1981). Why might an additional tournament structure alleviate the free-rider problem in teams? The idea is that the additional competition for rewards between team members induces them to exert more effort which would align the individual interests with the responsibility for the common good. We aim at contributing to the understanding of how compensation schemes affect human behaviour by providing a clear-cut comparison of a *hybrid* pay scheme to its components. We concentrate on the strategic and behavioural aspects of team-based compensation schemes with and without a relative reward by investigating them in a game-theoretic model and in an abstract non-real effort experiment. By doing so we provide evidence that additional individual rewards in teams are likely to crowd out voluntary cooperation. To the best of our knowledge a crowding out effect for the highly realistic compensation package composed of tournament incentives and team incentives has not been documented before in the literature.

Laboratory experiments have the decisive advantage that one can compare behaviour under different clear-cut conditions without distorting effects which are normally present when collecting data from the field. Thus, experiments appear to be a valuable complementary source of insight (in addition to theory and field studies) in order to gain a more complete picture regarding the behavioural consequences of reward schemes (Falk and Fehr, 2003). In addition to a purely team-based compensation treatment we consider two treatments in which the team incentive is supplemented by a relative reward — a low and a high bonus, respectively. As a benchmark we

<sup>2</sup> The total amount of the bonuses usually varies with the size of the *bonus pool* which is determined by some objective measures like overall corporate profit. How the bonuses are exactly awarded among the team members is rarely contracted explicitly and is often determined subjectively, for example, by more or less objective appraisals assessed by a team leader (Rajan and Reichelstein, 2006). Team leaders are encouraged to sufficiently differentiate their ratings by making use of the full range of grades (Murphy, 1992). These so called *forced rankings* can be directly related to bonus pay systems, to decisions on promotions, or even to advising low performers to leave the company (Pfeffer and Sutton, 1999).

<sup>3</sup> Note that the non-verifiability of the individual contributions to a third party does not induce a moral hazard problem on the side of the employer (as would be the case with piece rates) as long as the actual act of awarding the rewards is verifiable. Since the employer has to provide the rewards anyway, he has no incentive to shirk by not rewarding the (subjectively) identified top performers.

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