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Managerial beliefs and incentive policies☆

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ABSTRACT

This article examines incentive contracts under moral hazard when a principal and agents disagree about the likelihood that a task will succeed. The direction of disagreement alters the effectiveness of monetary incentives. The principal's optimal contract is a relative performance evaluation when she is more optimistic than the agents, and a joint performance evaluation when she is less optimistic. We further show why disagreement may prevail in organizations by considering a simple job assignment problem.

1. Introduction

Organizational policies are largely shaped by managers' life experiences, values, and beliefs. When managers have their own subjective beliefs about the prospects of a new project, those beliefs directly affect managerial decisions. In particular, in this paper, we study the effects of a manager's beliefs on incentive structures, which we believe represent one of the most important decisions made by managers in organizations. For example, Jack Welch, former CEO of General Electric, is known as an optimist, but is also known for championing internal competition. He was one of the most famous practitioners of the forced ranking system.[1] We believe that his optimism is deeply related to his management style and incentive policies.

When a manager does not share her beliefs about the contracting environment with workers, what types of incentive schemes and compensation arrangements does she offer the workers? Are incentives provided collectively based on team performance or competitively based on relative performance? How does a manager assign workers to tasks according to her beliefs relative to the workers' beliefs?

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[1] See Welch (2003) and CNNMoney, "Internal competition at work: Worth the trouble?", January 25, 2012. See also CBS, "What is forced ranking?", March 20, 2007.

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To address these questions, we extend the standard moral hazard model in which a principal offers an incentive contract to agents. The likelihood that a task succeeds is determined not only by agents' unobservable effort but also by their beliefs about the working environment. A manager and agents assess the working environment differently, and will therefore disagree about the likelihood that a task will succeed. This is the key element of the model – the contracting parties have their own subjective beliefs on the probability of success. Although they have different prior beliefs, they do not update those beliefs when they become aware of the difference – they simply agree to disagree.[2]

When a principal contracts with a single agent, a principal with a less optimistic outlook will provide higher-powered incentives. A principal who has weak beliefs about the success of a task expects that it is less likely that she will have to pay compensation even if she promises to give high-powered incentives. When a principal interacts with two agents and offers an interdependent compensation structure, however, the contractual outcomes are significantly different. The optimal incentive contract follows a relative performance evaluation (hereafter RPE) when the manager is rather optimistic, whereas a joint performance evaluation (hereafter JPE) is preferred when the manager is rather pessimistic.

The intuition behind these results is as follows. With two agents, the incentives can be provided as a mix of two devices: compensation for joint performance and compensation for relative performance. The principal's optimal mix of the two is determined by balancing the tradeoff between the principal's relative price for the two and the agents' relative responsiveness to the two. The balance is in turn dependent on different beliefs among the contracting parties. In particular, when a principal is more optimistic than her agents, she thinks that compensation for joint performance is more likely to occur than the agents think. Conversely, the agents think that compensation for relative performance is more likely to occur than the principal thinks. As a result, the principal offers an RPE wage scheme. The opposite is true when the principal is less optimistic than the agents – the principal offers a JPE wage scheme.

We then examine the principal's job assignment problem. We find that a principal prefers to have agents with different beliefs from herself for a task. This phenomenon may explain why disagreement is so commonly observed in organizations: disagreement naturally emerges from organizational management in aspects such as project choice, recruiting, and job assignments.

An increasing number of studies examine the contractual outcomes when contracting parties have their own subjective beliefs about the market environment. The literature has been primarily concerned with the effects of an agent's biased beliefs on contractual outcomes. Otto (2014) and many empirical papers investigate the effects of the CEO's optimism on executive compensation. Several papers study the effects of different prior beliefs on incentive contracts under moral hazard. In particular, the studies by Santos-Pinto (2008) and de la Rosa (2011) are closely related to ours.

On the one hand, de la Rosa (2011) considers a case with one principal and one agent, and the author allows heterogeneous beliefs in two dimensions – an agent can overestimate both the probability of success for any given effort level and the marginal contribution of his effort to the probability of success. The former is referred to as optimism, while the latter is referred to as overconfidence. de la Rosa studies the effects of each type of bias on the intensity of incentives and explains when an equilibrium contract entails higher or lower-powered incentives. Santos-Pinto (2008), on the other hand, considers the approach of Mookherjee (1984) with a principal-multiple-agent model and allows agents to have mistaken beliefs about each other's ability. He shows that an optimal contract offers an interdependent incentive scheme. Similar to Santos-Pinto (2008), our focus is on the multiple-agent case. However, we take the simpler approach of Che and Yoo (2001) by which JPE or RPE can be characterized formally, and we show that the optimal incentive structure depends on the direction of disagreement between the principal and the agents. In addition, we show that the principal's expected payment is not monotonic with the agents' beliefs, and we explore implications about job assignments.

In this field of literature, it is assumed that the principal has an unbiased belief and offers a contract that is able to exploit the agent's biased beliefs. This paper, however, focuses on the implications of a principal's beliefs on incentive policies. In this respect, the closest paper to ours is Van den Steen (2005). He considers that a manager can have an important influence on a firm's behavior by implementing a project generated by an employee. Our paper, however, considers a manager's choice of incentive policies when there exists moral hazard. The sorting outcome is also largely different – in Van den Steen's model, strong managerial beliefs attract employees with similar beliefs, whereas managers want to assign workers with different beliefs in our model.

Our paper also makes a contribution to the literature that has studied the merits of JPE and RPE (Green and Stokey, 1983; Mookherjee, 1984; Itoh, 1991; Che and Yoo, 2001; Kvaloy and Olsen 2006, Kim, 2012; Fleckinger and Roux, 2012). To the best of our knowledge, our model is the first to note that different beliefs between contracting parties may determine the emergence of JPE and RPE as optimal incentive schemes.

The remainder of the paper is organized as follows. Section 2 describes the basic model. Section 3 characterizes the incentive contracts. We begin with the benchmark case in which a manager contracts with one agent. Then, we study the two-agent case and present the main results. In Section 4, we extend the model by considering the manager's effort selection problem, continuous effort, and heterogeneous beliefs among agents. Section 5 concludes.

[2] Studies that consider heterogeneous beliefs include Harsanyi (1967), Morris (1995), Fang and Moscarin (2005), Eliaz and Spiegler (2006), Goel and Thakor (2008), Van den Steen (2005, 2010), and Che and Kartik (2009) among many others.