Three Essays on the Theoretical Analysis of

Incentive Contracts

Toshihiko NANBA

ABSTRACT

Most people work in some kind of organization. In an organization, each member acts with his or her own purpose. In other words, they do not always act in a way that is consistent with the organization's objectives. Therefore, it is important for organizations to design incentives when the objectives of an organization and its members are not consistent. In general, incentives in organizations, especially firms, are created by rewards. Hence, designing a compensation contract is a very important problem for firms.

Much work has been done in contract theory on this incentive problem, and important predictions have been obtained. However, not all of these predictions have been fully examined. The purpose of this essay is to re-examine some predictions in standard contract theory. To do this, we consider moral hazard models in a principal-agent setting, which is a standard framework in contract theory.

Chapter 1 aims to re-examine one of the most important prediction in contract theory: the trade-off between "uncertainty" and "incentives". It is well known that this theoretical prediction not well-supported empirically. Then, we reconsider the theoretical framework to explain the difference between results in theory and empirical studies. We show that there is no trade-off between uncertainty and incentives.

Chapter 2 aims to examine the optimality of quota-based contract when the agent is risk-averse. This type of contract is widely used, but its optimality has not been sufficiently analyzed, especially for the case where the agent is risk-averse. Previous works show that a quota-based contract can achieve the first-best outcome if the agent is risk-neutral. But it is not clear whether this result holds when the agent is risk-averse. We show that a quota-based contract can achieve the first-best outcome if the agent is sufficiently risk-averse. This result partially explains why quota-based contracts are widely used.

In chapter 3, we focus the agent's gaming activity, especially timing gaming, in quota-based contracts. It is well known that a non-linear compensation scheme induces the agent to game the system. But it is not clear whether such activities are profitable for firms. We examine the effect of gaming activities in quota-based contract by considering a dynamic moral hazard

model in which the agent can manipulate the timing of reports. We show that the agent's timing gaming is profitable for the firms when the agent is faced with a difficult task.

The results of this essay provide implications for incentive design in organization. Furthermore, I think these theoretical studies expand the possibilities of contract theory.