Renegotiation and conflict resolution in relational contracting

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A B S T R A C T

Renegotiation and conflict resolution are studied in relational contracting under subjective evaluation. Renegotiation has three effects. First, it makes the incentive pay scheme low powered: the maximum variation of compensation across performance levels is compressed and the contract is less extreme compared to the case without renegotiation. This effect is stronger when the players are less patient. Second, renegotiation typically renders termination impossible; the contract relies on a "low-morale" mechanism to enforce mutual cooperation. Finally, renegotiation compels the players to resolve their conflicts by selecting a contract that maximizes the lowest possible surplus along the path of the contract.

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1. Introduction

Performance measurement lies at the heart of an effective incentive system. Traditional incentive theory has mainly looked at situations where performance can be measured objectively and hence compensation can be explicitly based on objective measures. For many jobs, however, performance is hard to measure let alone to verify objectively, and agents are often compensated with discretionary payments such as bonuses that are based on subjective assessments of performances (Baker et al., 1994; Prendergast, 1999). Several studies have shown that self-enforcing contracts can mitigate or even completely resolve the moral hazard problem that comes with non-verifiable performance measures, as long as the measures are mutually observable to the principal and agent.[2]

Matters are harder however if the principal and agent each have their own, subjective, performance evaluation. This line of research recently has been pursued in Levin (2003), MacLeod (2003), and Fuchs (2007). These studies introduce *private* performance evaluation by the principal, which is meant to capture the potential differences in agents' opinions and reflects the often unobservable nature of the principal's evaluation of the agent's contribution in many situations. For self-enforcing contracts to work, repeated interactions are needed to ensure that the principal and agent can credibly punish each other

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[2] For example, Bull (1987) and MacLeod and Malcomson (1989) show that when the principal and agent have the same beliefs regarding a subjective evaluation there exist first-best efficient self-enforcing contracts. Pearce and Stacchetti (1998) (also see Baker et al., 1994) show that the existence of contractible measures of performance can enhance the effectives of implicit contracts.

if either of them deviates from their implicit agreement. As shown by these authors, when output is privately observed *mutual* punishments actually are needed to support self-enforcing contracts. These punishments, in the form of terminating the relationship or players' carrying out inefficient actions for a period of time, are broadly consistent with the observation that conflicts are commonplace in organizations and in other long-term relationships.

This "favorable" view of conflict, however, does not seem to be shared by many organizations as they devote considerable resources to minimizing if not completely eliminating conflicts. Institutions such as arbitration and mediation are also established to resolve disputes. Such a sentiment towards conflict is also generally shared in the management literature (e.g. Milkovich and Newman, 1996).

In this paper I argue that such efforts toward conflict resolution can be reconciled with the functional role of conflict in enforcing relational contracts, when the possibility of contract renegotiation is taken into consideration. The point of departure is to recognize that ex post inefficient continuation contracts are open to renegotiation when the mechanism for enforcing the contract relies on only the agents' self interests. Specifically, I begin with a model similar to that of Levin (2003) in which a risk-neutral principal privately monitors the performance of a risk-neutral agent. Although the principal has private information about the agent's performance, the principal's wage payment as well as any performance report are public information and are shared by the agent. This formulation allows me to focus on a class of perfect public equilibria of the repeated game (Fudenberg et al., 1994) (see Section 2). I then introduce a new ingredient in the model: to allow the two parties to renegotiate their agreements in every period. I study relational contracts that are renegotiation proof in the sense of Pearce (1987).

The renegotiation-proof concept has been previously applied to symmetric repeated games (see Abreu et al., 1993). Although the game in the present model is not symmetric, the concept turns out to be particularly suitable thanks to transferable utilities. In the present model collective welfare is measured by the total surplus generated in the relationship, and punishment for deviation takes the form of surplus destruction. As such agents can focus on what level of total surplus is acceptable when (re)negotiating agreements.

The idea is that when renegotiating current agreements the principal and agent realize that what they deem as an unacceptably low surplus today will be treated as such in the future as well. This will give them pause when renegotiating away from some "low" surpluses because such actions will forfeit *future* punishments and hence may actually hurt their current welfare as such punishments may be necessary for achieving good outcomes today.

The resulting renegotiation-proof contracts display several features that are consistent with some important characteristics of relational contracts.

First, renegotiation-proof contracts turn the group preference into a type of Rawlsian preference in the sense that the principal and agent select the contracts that maximize the lowest continuation surplus across all histories. This result, following from the renegotiation-proof concept, provides a perspective on conflict resolution: conflicts are minimized to achieve the best worst-case surplus. I show that shifting the focus to the *maximin* surplus indeed raises the minimum continuation surplus compared to optimal contracts without renegotiation. The result is a compression of the overall variation of continuation surpluses across all histories. It helps explain the apparent contradiction between the usefulness of invoking conflicts at enforcing cooperation and the vigorous efforts directed at minimizing conflicts in many organizations.

Second, the need to compress continuation surpluses also translates into *low-powered* incentive contracts *in every period*: the maximum variation of pay-to-performance ratio is more compressed and the incentive scheme is less extreme compared to optimal contracts without renegotiation. For instance, previous studies have shown that under private evaluation optimal contracts would punish the agent only when the worst performance is observed but with a big stick (MacLeod, 2003). In contrast, the compensation scale is less extreme in renegotiation-proof contracts: punishment is reduced in size but spread beyond the worst performance level, or equivalently, the size of reward and the chances of getting it (controlling for effort) are both reduced. This result provides an explanation for the observation that many real world incentive contracts are not as powerful as what existing theory predicts they should be.

Third, renegotiation-proof contracts generally render termination impossible; instead, the contracts rely on the "low-morale" mechanism, episodes in the relationship during which the agent exerts low effort and receives low pay, to enforce cooperation. This result again is consistent with stylized facts. For instance, union-firm contracts are often subject to renegotiation and the parties rarely got stuck in the worst conflict forever: they may go through periodic conflicts such as strikes or lockouts but they generally get back to better outcomes after a series of bad ones, consistent with what the theory predicts. The result that renegotiation-proof contracts select recurrent conflicts over termination as the mechanism to enforce cooperative behaviors also throw light on how incentives are generally provided under subjective evaluation, given that termination is infrequent relative to the wide use of subjective evaluation in practice.

In closing the introduction, note that although renegotiation is treated as a technological issue, i.e. agents do not have access to a (legal) technology that enables them to commit to ex ante agreements, it is also useful to link it to preferences over long-term outcomes. One could view the desire of reducing conflicts as part of a preference trait. Then the renegotiation-proof contracts merely depict what is optimal under the maximin Rawlsian social preference.

In the rest of the paper I first introduce the model, then discuss the motivation and definition of renegotiation, and finally study the properties of renegotiation-proof contracts.