

Simple contracts, renegotiation under asymmetric information, and the hold-up problem

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Abstract

In this article it is demonstrated that voluntary bargaining over a collective decision under asymmetric information may well lead to ex post efficiency if the default decision is non-trivial. It is argued that the default decision may be interpreted as a ‘simple’ contract that the parties have written ex ante. This result is used in order to show that simple unconditional contracts which are renegotiated may allow the hold-up problem to be solved, even if the parties’ valuations are private information. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

This article considers a variant of a standard mechanism design problem. There are n risk-neutral agents who have to make a collective decision $q \in [0,1]$. The decision $q = 1$ is ex post efficient whenever the sum of the agents’ valuations for an affirmative decision is positive, whereas $q = 0$ is ex post efficient

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otherwise. The agents possess private information on their independently distributed valuations. It is by now well known that ex post efficiency can be achieved in such a problem with quasi-linear utilities, if the parties can write a comprehensive contract ex ante; i.e., before they privately learn their types (see D'Aspremont and Gérard-Varet, 1979; Arrow, 1979). In this paper it is assumed instead that ex ante the parties can only write a simple ('incomplete') contract which merely consists of an unconditional trade level $q_0 \in [0, 1]$.¹ Can voluntary bargaining that starts after the parties have learned their valuations lead to ex post efficiency, given that the ex ante contract just specifies a default decision q_0 ?

The impossibility result of Myerson and Satterthwaite (1983) says that given a non-trivial decision problem, in the case $n = 2$ ex post efficiency cannot be achieved if $q_0 = 0$ (which corresponds to no ex ante contract). For $n > 2$, the impossibility result has been further strengthened by Güth and Hellwig (1986).² In contrast, here it is argued that ex post efficiency may be achieved if $q_0 \neq 0$.

This paper is motivated by a major problem in contract theory. While optimal complete contracts are often quite complicated, real world contracts seem to be rather simple.³ One possible explanation is the fact that even though simple contracts may often not be flexible enough to induce the first best directly, they may be efficient if they are renegotiated in a certain way (cf. Huberman and Kahn, 1988). In particular, several recent papers have shown that while the well-known hold-up problem can often be solved by sophisticated contracts (see Rogerson, 1992), it may also be solved by simple contracts that just specify a threatpoint for future negotiations, given that the parties are symmetrically informed (cf. Aghion et al., 1990, 1994; Chung, 1991; Nöldeke and Schmidt, 1995, 1998; Edlin, 1996; Edlin and Reichelstein, 1996).⁴ This paper attempts to make a first exploratory step directed at a generalization of these insights to the case of private information.

The paper is organized as follows. The first result in Section 2 characterizes decision rules that can be implemented if the default decision is exogenously given by some value $q_0 \in [0, 1]$. The second result shows that in the case of identically distributed valuations, there is an easily interpreted default decision q_0 , such that ex post efficiency can be achieved for any number n of agents. The third result shows that in the setting of Myerson and Satterthwaite (1983), ex post efficiency is always achievable if the default decision is chosen appropriately. In Section 3 it is argued that this insight can be folded back into

¹ In addition, the contract may specify a lump sum up-front payment.

² See also Rob (1989) and Mailath and Postlewaite (1990).

³ Cf. Hart and Holmström (1987) and Hart (1995).

⁴ This positive view of renegotiation has to be distinguished from the 'renegotiation-proofness' concept in traditional complete contract theory, where the class of contracts that can initially be written is not restricted. There, the fact that parties cannot rule out renegotiation can only be harmful, since it imposes additional constraints.

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