Optimal Overspecified Contracts

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2019

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Motivation

- In practice, compared to simpler contracts, overspecified contracts may implement desired outcomes in some situations, such as slack enforcement and damage compensation. However, some may challenge it would be a waste of resources due to the excess restrictions. Hence, the author considers overspecified contracts that include clauses that are not enforceable and show that they may be optimal under some conditions.

Motivation examples

- Slack enforcement- In the US, the police in some areas may tolerate slight violations of the speed limit. Many believe that this is justifiable because speed limits are too restrictive in the first place. In this case, we can find it may be optimal to overspecify the social contract by setting the speed limit slightly lower than the optimal maximum highway speed.
- Damage compensation- Some laws rule out punitive contractual transfers, which means that the breaching party doesn't have to face the penalty for excess harm of her counterparts. In this case, overspecified contracts can put the client in a stronger position if she isn't satisfied with the provider.
- Individual liability- Suppose that agents sign contracts by which they commit not only to exert high effort but also to monitor each other. These overspecified contracts make each agent indirectly responsible for the other agents. In equilibrium, each agent exerts high effort and doesn't need to monitor others.

Main Research Question

- In what situation that overspecified contracts may be optimal?

Main Result

- By formulating a general model of contractual enforcement, the author considers overspecified contracts that include clauses that are not enforceable and identifies that desired outcomes may only be implemented with them in situations mentioned in examples before. Such mechanisms are needed to circumvent legal restrictions or practical enforcement limitations that prevent implementation with enforceable contracts.

Model

- Consider a Bayesian game $G = (I, \Omega, \rho, A, \Theta, u)$: I is the set of players, Ω is the set of states, ρ is the move of nature over Ω, and for each player i, A_i is the set of actions, Θ_i (a partition of Ω) is a set of types , u_i is the payoff function over pairs (a, w), where a is an action profile and w is a state of nature.

Model: Some properties

Enforceability Principle. *Given game G, and enforcement function F, any implementable strategy profile s can also be implemented by an enforceable contract t.*

- With this principle, we can focus on contracts instead of strategies.

Theorem 1 *For any Bayesian game G, if the enforcement function F is* idempotent, *i.e. $F \circ F = F$, then any implementable strategy profile s can be implemented with an enforceable contract, so that the enforceability principle holds.*

- Now we know the situation that the principle holds, which is useful to analyze.

Model: Findings

Proposition 1 *For any Bayesian game G, and partitional verification correspondence P, absent legal constraints, or when the only legal constraint is limited liability, the enforceability principle holds.*

- Intuition:

  In this case, whether contractual transfer t(x) is enforced or not depens only on whether or not t is constant on the set P(x). If t(x) is enforced, t is constant on the set P(x), and thus the enforcement F is idempotent.

Model: Findings (Con't)

Proposition 2 *For any Bayesian game G, and transitive verifiability structure P, absent legal constraints, the enforceability principle holds for all the transfer determination rules presented in Section 4.*

- In this proposition, the author proves that the enforceability principle holds in some situations and decides to use it later.

Model: Findings (Con't)

Proposition 3 *For any Bayesian game* $G = (I, \Omega, \rho, S, \Theta, u)$ *and enforcement function* F*, if there exists a player* i*, and opponent's strategy profile* s_{-i} *such that the contractual deterrence order* $L_i[\theta_i, s_{-i}; G, F]$ *fails to be negative-transitive, then for some* $s_i \in S_i$*, either the outcome* $s = (s_i, s_{-i})$ *is not implementable, or the enforceability principle fails at* s*.*

- This result shows that contracts may not be optimal. For example, there exists intransitivity in generating failures of the enforceability principle.

Model: Findings (Con't)

Proposition 4 *The first best effort levels* $\mathbf{e}^*$ *cannot be implemented with any contract* t *enforceable at* $\mathbf{e}^*$ *when the enforcement function* F *is described by either (4) or (5). For the latter, first best efforts* $\mathbf{e}^*$ *may be implemented with an overspecified simple contracts* $t[\hat{\mathbf{e}}, f]$ *where* $c(\mathbf{e}^*) \leq f \leq v(\mathbf{e}^*)$ *and* $\hat{\mathbf{e}} > \mathbf{e}^*$ *solves (3); for the former,* $\mathbf{e}^*$ *may be implemented with contracts* $t[\hat{\mathbf{e}}, f]$ *where* $\hat{\mathbf{e}} > \mathbf{e}^*$ *solves* $v_1(\hat{\mathbf{e}}) = v_1(e^*, \bar{e})$.

- This result shows that overspecified contracts may be optimal when facing the previous problem.

Discussions and comments

- In the real world, it is not uncommon that people use overspecified contracts that include clauses that are not enforceable. However, I haven't thought about it by economic intuition. This paper shows me a brand-new aspect of contracts.

- Here I have a question. In some cases, we can find contracts with deposits, and there are no other restrictions. Thus, we may see them as kinds of simple contracts. The deposits may be confiscated in some situations despite that the contract is enforced. I wonder that whether these contracts have the same effect as overspecified contracts in this paper?