

Mechanism design without transfers¹

1 Setting

- One principal
- One agent
- Informational asymmetries
- The Agent is privately informed about his type θ .
- The Principal only knows the distribution $F(\cdot)$ of θ .
- Impossibility to specify transfers. The Principal has only one instrument to contract with the agent.

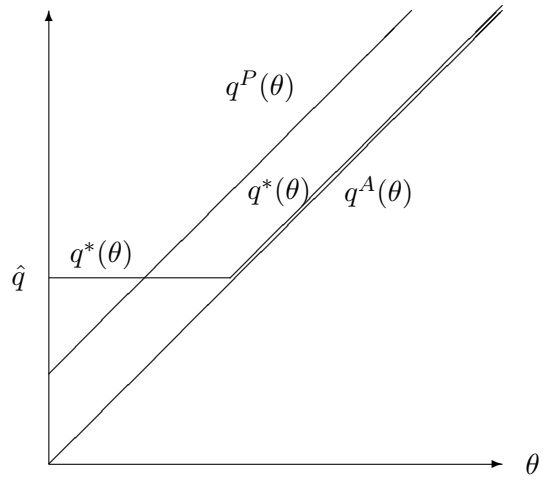
2 Simple model

- Agent's preferences are $U(q, \theta)$ and preferences of the Principal are $V(q, \theta)$. There is a mild conflict of preferences.
- If decision q is delegated to the agent, he chooses $q^A(\theta)$ to maximize $U(q, \theta)$. The optimal solution for the Principal is $q^P(\theta)$ that maximizes $V(q, \theta)$.
- Timing:
 - Date 1: the Agent observes θ
 - Date 2: the Principal offers a mechanism $q(\theta')$ for all θ' .
 - Date 3: the Agent sends a message θ' .
 - Date 4: the mechanism is implemented.
- Suppose preferences are single peaked quadratic preferences, $U(q, \theta) = -0.5(q - \theta)^2$ and $V(q, \theta) = -0.5(q - \theta - \delta)^2$

3 Optimal mechanism

- Incentive compatibility: $U(q(\theta), \theta) \geq U(q(\theta'), \theta)$. It is satisfied if $q(\theta) = q^A(\theta)$ or if $q(\theta) = q$ for all θ (full pooling).
- The objective of the Principal is to choose a solution that is incentive compatible and as close as possible as his own preferred solution.
- The optimal solution $q^*(\theta)$ coincides with the preferred solution of the agent on some intervals, and pools on the others. For example, we may have a solution of this form (depending on the distribution of θ).

¹This document is intended to provide only a few take-home messages. It is not a substitute for attending class and taking notes.



- The principal lets the agent choose what he prefers provided this choice is above \hat{q} .
- The contract is simple. The optimal contract looks like an incomplete contract.
- Relevance of the theory: theory of organizations (rationalize delegation), regulation, political economy (compare legislature with and without transfers).