

Implicit contracting¹

1 Setting

- One principal
- One or several agents
- Informational asymmetries
- Impossibility to write a contract

2 Example: Career concerns

See Holmstrom (1982) - (1999)

- Explicit incentives are a direct way to encourage and reward performance in firms. However, explicit incentives are often restricted (by law, problems of observability). An alternative is to provide implicit incentives in the form of career concerns. This is an indirect way to promote efficiency.
- Simple model: performance is a stochastic function of ability and effort at each date t :

$$z_t = \theta + e_t + \eta_t$$

where z_t is the output, θ , ability, e_t an unobservable effort at date t and η_t a noise with zero mean. Wage is paid before observing performance (to capture the absence of explicit incentives) and labor market is competitive so that the wage is equal to the expected outcome. At date t , we have

$$w_t = E[z_t | z_{t-1}, z_{t-2}, \dots, z_1]$$

Agent's utility at t is

$$w_t - c(e_t)$$

where $c(e)$ represents the cost of effort with $c' > 0$ and $c'' > 0$. The inter-temporal utility at date t is therefore

$$U_t = E \left[\sum_{\tau=1}^T \delta^{\tau-1} (w_{t+\tau} - c(e_{t+\tau})) \right]$$

- Benchmark: with an explicit scheme (current wage contingent on current output), the agent chooses e_t to maximize $\theta + e_t + \eta_t - c(e_t)$, that is chooses $e_t = e^*$ such that $c'(e^*) = 1$

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

- Implicit incentives in a static game. When the agent chooses e_1 , the wage is already committed to (sunk) and there is no future. Therefore $e_1 = 0$. This is anticipated so $w_1 = E[z|e_1 = 0] = E[\theta]$.
- Implicit incentives in the two period model. This is a sequential game. At date 2, $e_2 = 0$ and $w_2 = E[z_2|z_1; e_2 = 0] = E[\theta + e_2 + \eta_2|z_1; e_2 = 0] = E[\theta|z_1]$. At date 1, the agent chooses e_1 to maximize

$$w_1 - c(e_1) + \delta E[\theta|z_1(e_1)]$$

He exerts effort to affect z_1 and consequently bias the perception of θ at date $t = 2$ and get a higher wage.

- The agent tries to fool the market. In equilibrium, the effort is fully anticipated, so there is no bias.