Low Incentives in Organizations: Multi-tasks

Ram Singh

Lecture 3

Second Best I

Subcase : $\delta = 0$: In this subcase, from (8) and (9)

$$s_i = \frac{1}{1 + r\sigma_i^2 c_i} = \frac{1}{1 + r\sigma_i^2 \psi_{ii}}$$

Note

- From (3) and (4) note: if $\delta = 0$, $\frac{de_1}{ds_1} = \frac{1}{c_1} = \frac{1}{\psi_{11}} > 0$ and $\frac{de_2}{ds_2} = \frac{1}{c_2} = \frac{1}{\psi_{22}} > 0$.

- From (6) and (7), if $\delta > 0$,

$$s_1(\delta) < s_1(0) \ \& \ s_2(\delta) < s_2(0);$$

and if $\delta < 0$,

$$s_1(\delta) > s_1(0) \ \& \ s_2(\delta) > s_2(0).$$

- Therefore, 'power' of the incentives is inversely proportional to δ.

Second Best II

Special Case 2: $R \neq 0$:

For simplicity assume $\delta = 0$, $\sigma_1^2 = \sigma_2^2 = \sigma^2$, $c_1 = c_2 = c = 1$:
Now, ICs are

$$s_i = e_i = \psi_i(e|\delta = 0).$$

So, Principal solves

$$\max_{e_1, e_2}\{e_1 + e_2 - [\frac{1}{2}e_1^2 + \frac{1}{2}e_2^2 + \delta e_1 e_2] - \frac{r}{2}[s_1^2\sigma_1^2 + s_2^2\sigma_2^2 + 2Re_1 e_2]\}$$

or

$$\max_{s_1, s_2}\{s_1 + s_2 - [\frac{1}{2}s_1^2 + \frac{1}{2}s_2^2 + \delta s_1 s_2] - \frac{r}{2}[s_1^2\sigma_1^2 + s_2^2\sigma_2^2 + 2Rs_1 s_2]\}$$

Second Best III

foc are

$$1 - rRs_2 - s_1 - r\sigma^2 s_1 = 0$$
$$1 - rRs_1 - s_2 - r\sigma^2 s_2 = 0$$

So,

$$s_1 = s_2 = s^{SB} = \frac{1}{1 + r\sigma^2 + rR}$$

Recall, $s_i = e_i = \psi_i(e|\delta = 0)$. Hence

$$e_1 = e_2 = s_1 = s_2 = s^{SB}$$

Clearly,

$$\frac{\partial e_i^{SB}}{\partial R} = \frac{\partial s_i^{SB}}{\partial R} < 0.$$

That is,

- If $R > 0$, compared to the case when $R = 0$, the principal will reduce the power of the incentive.

- If $R < 0$, the principal will increase the power of the incentive.

Dependent Tasks: Conclusions I

When tasks are interdependent and the worker is risk averse: The owner will

- use incentive contract for the measurable tasks.

- however, will use low-powered incentive contracts

- due to multi-tasking, the incentive pay encourages substitution among tasks

- desirability of high-power incentive contracts for measurable tasks reduces as the measurably of some other tasks reduces

Dependent Tasks: Conclusions II

The measurability of tasks is an important determinant of integration of tasks

- an employee is allowed to engage in 'outside' activities only if the 'inside' tasks are measurable.

- when 'inside' tasks are NOT measurable, the worker will be employed as and employee of the firm rather than working independently.

- So, non-measurability of outputs increases the 'size' of the firm, (in terms of number of employees).