Deferred compensation – wages increase with tenure at a faster rate than productivity

Ex: Seniority based increases
   Pensions

Why defer compensation?

Provides workers with an incentive

1) not to quit
2) not to do anything that will lead to dismissal

Thus firms will offer deferred compensation if turnover or low effort is costly
A Model of Deferred Compensation

2 players – worker and firm
3 periods – young, old, retired

firm chooses \( W_1, W_2, W_3 \)
\( W_1 \) and \( W_2 \) can be thought of as wages
\( W_3 \) can be thought of as a pension

The worker must choose effort level, 
\( e (0 – \text{low or } 1 – \text{high}) \)

High effort has a cost of \( C \)

If the worker chooses \( e=0 \) then there is a probability \( p \) that they will be fired

If the worker is fired after period 1, they receive 0 in periods 2 and 3

If the worker is fired after period 2, they receive 0 in period 3

Assume that productivity with high effort is \( Z \)
Assume productivity with low effort is 0
Also assume \( Z > C \), high effort is socially optimal
Worker’s problem

Choose e=1 if expected payoff > than if e=0

Firm’s problem choose \((W_1, W_2, W_3)\) such that the worker chooses e=1

Solve backwards

In period 2 choose e=1 if:

\[(W_2 - C) + W_3 \geq W_2 + pW_3\]

or \(W_3 \geq C/(1 - p)\)

Assume that this holds. Then, in period 1 choose e=1 if:

\[(W_1 - C) + (W_2 - C) + W_3 \geq W_1 + p(W_2 - C + W_3)\]

or \(W_2 > C\)

\(W_1\) has no incentive effects, it is a “gift”

In equilibrium \((W_1, W_2, W_3) = (0, C, C/(1 - p))\)

Output = Z, Z, 0

Diagram of Wages and Productivity
A Deferred Compensation Contract

Underpay young worker and overpay old worker

\[ \text{MRP}_t \neq W_t \text{ but } \sum_{t=0}^{T^*} \text{MRP}_t = \sum_{t=0}^{T^*} W_t \]
Problems

1) Firm wants to renege and dismiss worker after T*

2) Worker wants to stay on after T** because they are overpaid

Solutions

1) The firm’s reputation (and ability to recruit) is harmed by dismissing older workers. Alternatively legally binding contract at t=0.

2) Mandatory retirement

Policy implications

1) Anti-age discrimination legislation

2) Compulsory vesting of pensions
Testing for deferred compensation

Problem – Can’t observe productivity, so need indirect tests

1. Regress slope of the wage profile \([\ln W_{65} - \ln W_{30}]\) on job characteristics such as:

   Difficulty of monitoring
   Hiring, training, and turnover costs
   Loss from moral hazard

2. Regress wages on characteristics, including tenure. Is the late career profile “too steep” to be explained by human capital?

3. Regress slope of the wage profile on worker and firm characteristics.
   A. Do firms facing the possibility of bankruptcy have flatter profiles?
   B. Do wage profiles flatten after a hostile takeover?

4. Regress wages on characteristics, including age/tenure. Regress performance evaluations on the same characteristics. Do wages increase with age/tenure at a faster rate than performance evaluations?
General Observation: deferred compensation seems to be declining over time. Why?

1. Computers, etc. make it easier to continually monitor workers
2. Trend toward general skills (higher education) – lower fixed cost of training and thus lower turnover costs
3. Higher female participation rates mean that labour markets are “thicker” – easier and less costly to replace workers
4. Higher firm failure rates – promise not to dismiss workers after T** is less credible