LABOR AS A QUASI-FIXED FACTOR: Effect of Turnover on Employment Relationship

I. Turnover from 2 perspectives
II. Efficiency Wages as solution to turnover

2 SIDES TO VOLUNTARY Turnover

FIRM’S VIEW

- Turnover is a cost
  - Replacement Costs
  - Loss of investment

WORKER’S VIEW

- Turnover is an investment
  - Direct Current Costs
  - Indirect Current Costs
  - Expected Future (may be soon) Benefit

Worker Perspective: Turnover as Human Capital Investment

- Same framework as with education:
  \[ PVB = \Sigma (B_1 - B_2)/(1+r)^t \]
  - Where: \( B_1 \) are the benefits associated with leaving current job
  - \( B_2 \) are the benefits associated with staying in current job
  - \( t \) is length of time expected to be in new job and \( r \) is discount rate
  - Leave if \( PVB \geq C \)
  - \( C \) are the direct costs associated with t.o. borne by the employee
YOU TELL ME:
WHO IS MORE LIKELY TO VOLUNTARILY LEAVE?

- Males or Females
- Minority or Non-Minority
- Older or Younger
- More Educated or Less Educated
- Up or down swing of Business Cycle
- More Job Tenure or Less
- Urban or Rural
- Large or small firm

Employer Perspective:
Replacement Costs

- Incoming employees: takes 13.5 mo. to reach 100% efficiency
- Co-Worker time: b/n 8% and 14% of workday helping new employee
- Departing employee: 1 mo. lost prod.
- Co-worker slack off
- Vacancy period: 13 wks.

Estimates of Replacement Costs

- HR Manager Auto Manu. $133,803
- Salaried Journeyman machinist: $102,796
- Hourly Journeyman machinist: $58,732
- Technical Project Leader Software Co: $32,215
- Systems Engineer Software Co: $34,397
- Fast Food Chain Store Manager: $21,931
- Kitchen or Counter Person Fast Food: $1,521

Joint Problem with Turnover: Loss of Human Capital Investment

- Loss to Individuals:
  - Loss of Firm Specific Human Capital Investment

- Loss to Firms:
  - Loss of both Firm Specific and General Human Capital Investments

EFFICIENCY WAGES:
Earnings Schedule As Way To Reduce Turnover

“Typical” Earnings Schedule revisited

Earnings rise quickly early in career

Then flatten out later in career

Earnings rise quickly early in career

Time
TWO PUZZLES ABOUT EARNINGS

- Why do earnings increase with work experience?
- Why do some firms appear to be paying above-market wages?

Answer: Firms are engaging in an EFFICIENCY WAGE STRATEGY

EXPLANATIONS FOR WHY EFFICIENCY WAGE STRATEGY

4 Explanations
1) Reduce Shirking
2) Raise Morale
3) Improve Job Applicant Quality
4) Lower Turnover

BASIC EFFICIENCY WAGE MODEL

- Competitive Product Market
- Firm production function:
  \[ Q = f(e(w)n) \]
  \( e \) is effort per worker, \( w \) is wage, \( n \) is number of workers

People respond to greater wages with greater effort
Intuition of Efficiency Wages

- People respond to greater wages with greater effort
- Shows that paying above market may be economically rational
- Also provides basis for increase in earnings over time

Why Earnings Increase over time: MONITORING AND REDUCING TURNOVER

- 2 Types of Compensation
  - Time-based
    - Reward or pay according to # hours or days or weeks
  - Output-based
    - Reward or pay according to output (e.g., piece rate, commissions, profit-sharing)

EMPLOYER & WORKER PREFERENCE

- ERs Prefer Output-based
  - Tight link b/n pay & productivity
    - Efficiency condition: MP = W
  - Workers bear risk of uneven prod.
  - Attract most productive
  - Minimal monitoring

- Workers Prefer Time-based
  - Need for stable income (variable earnings but constant expenses)
Each Type Poses Problems for Employers

- Piece-Work
  - Product Quality
  - Misuse of equipment
  - Rate setting
  - Measuring output
    - Group Production
    - Free Rider
    - Complex output

- Time-based
  - Shirking
  - Monitoring (the Agency Problem)

Most Pay is Time Based

Efficiency Wage Solution to Time-Based Pay

- Take advantage of fact that work takes place in contractual environment
- Features of contractual environment
  - 2 Parties agree to exchange
  - Two types of contracts
    - Explicit
    - Implicit

Implicit vs Explicit

- Explicit contracts
  - Have specific provisions
  - Enforceable by 3rd party
- Implicit: Self-Enforcing Contract
  - Def.: where in both parties' self-interest to abide by contract
  - Contract generates surplus (get more from contract than next best alternative)
Self-Enforcing Contract in workplace

- **Worker Objectives**
  - Risk-Averse
  - Reward = 
  - Firm must eventually pay more than can earn elsewhere
  - Source of surplus: Earning more than next best alternative

- **Firm Objectives**
  - Maximum productivity at lowest monitoring costs
  - Source of Surplus: PV of profits from worker’s efforts > can get from firing worker

Earnings Schedule as Self-Enforcing Contract

- **CASE 1: FLAT EARNINGS**
  - Workers get same (market) wage in each period
  - Analysis:
    - No Disincentive for Worker Cheating: No Benefit to Worker to Renew Contract
    - No Incentive to Firm to Keep Worker: If paying MPL, can just hire different worker
    - Reason we don’t see flat earnings in L-T employment relationship

CASE 1: Flat earnings

<table>
<thead>
<tr>
<th>Wage</th>
<th>Market Wage</th>
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<tbody>
<tr>
<td></td>
<td></td>
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<tr>
<td>Time</td>
<td></td>
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</tbody>
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CASE 2: FLAT EARNINGS TTurning Up At End

- Workers receive $W (=MP_L)$ for all periods until last.
- Pay a Bonus to get worker not to shirk in last period.
  - Size of bonus depends on:
    - Benefit of not putting forth effort
    - Probability of getting caught

CASE 2, CONT:

- Analysis:
  - Shirking problem: Prevent workers from cheating by paying more than alternative in last period.
  - But, violates efficiency condition: Firm must still meet efficiency condition ($PVP_L = PVC$), but would have to pay $W < MP_L$.
  - Firm can still cheat and has incentive to do so.
  - Rare in long-term employment relationship

Case 2: Bonus in last period

![Diagram of Wage vs. Time with Market Wage]
**CASE 3: LOW START, FLAT IN MIDDLE, HIGH AT END**

- **Entrance Fee**: Way for firms to meet efficiency condition over employ. rel.
- **Analysis**:
  - Both parties need surplus since both can cheat (firm can fire; worker can shirk)
  - Bonus must outweigh entrance fee & benefit of shirking: Worker must believe firm will pay

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**Case 3: Upward Sloping Wages**

- Wage vs. Time graph

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**Case 3: Upward Sloping Wages, Smoothed**

- Wage vs. Marginal Product vs. Time graph
EARNINGS SCHEDULE AS SELF-ENFORCING CONTRACT, CONT.

- UPWARD SLOPING WAGE PROFILE
  → Looks like typical earnings function
- PUZZLE: How to get people to leave at end of bonus: Mandatory retirement (What I think your biggest problem is going to be)

EARNINGS SCHEDULE AS SELF-ENFORCING CONTRACT SOLUTION

- ILM & Market Coincide
- Increasing earnings over time = alternative to close supervision under time-based compensation
  → Pay workers more than best alternative
  → Offer rewards after years of diligent effort
  → Long-term relationship allows monitor

ILM AS SELF-ENFORCING CONTRACT SOLUTION, Cont

- Workers choose firm based on PV of lifetime earnings not entry wage
- Nature of Contract
  → Long-term relationship
  → Job security and sustained effort
- Features of ILM that solve monitoring
  → Resource control after long tenure
  → Job complexity