WAGE PAYMENT

IENG 301

FUNDAMENTALS OF WORK STUDY AND ERGONOMICS

Key Points

- Set simple but fair incentives based on proven standards
- Guarantee basic hourly rates
- Provide individual incentives about the base rate
- Tie incentives directly to increased production of a quality product
- Avoid offsetting productivity gains with increased injury costs

Wage Payment

- The principal factors in creating highly productive and satisfied workers are <u>reward</u> and <u>recognition</u> for effective performance.

- The reward must be meaningful to the employees, whether it is financial, psychological, or both.

Fringe Benefits

Benefit	Aprrox. %
Health insurance	13-18
Vision insurance	½-1
Dental insurance	2-4
Vacations (up to 4 weeks/yr)	20-25
Personal leave (up to 5 days/yr)	2-5
Holidays (up to 10 days/yr)	10-12
Term life insurance	2-5
Long-term disability	1-3
Pension	25-30
Educational expense reimbursement	1-2

Flexible Compensation Plans

- All incentive plans that increase the employee’s production
  1. Piecework and standard labor hour plans
  2. Gain-sharing plans (Scanlon, Improshare)
  3. Employee stock-ownership plans (ESOPs)
  4. Profit-sharing plans

Day Work Plans

- Compensate the employee on the basis of number of hours worked times an established hourly base rate

  (no. of hours worked) x (hourly base rate)

- Unit labor costs decrease as worker productivity increases
  - Unit labor cost = $\frac{\text{(employee wages)}}{\text{(productivity or worker performance)}}$

- All day work plans have one weakness; the company never realizes the expected lower unit labor costs

Day Work Plans

$$y_c = y_w / x$$

where;

y_c= normalized unit labor cost
y_w= normalized hourly base rate (=1)
x= normalized produtivity or performance

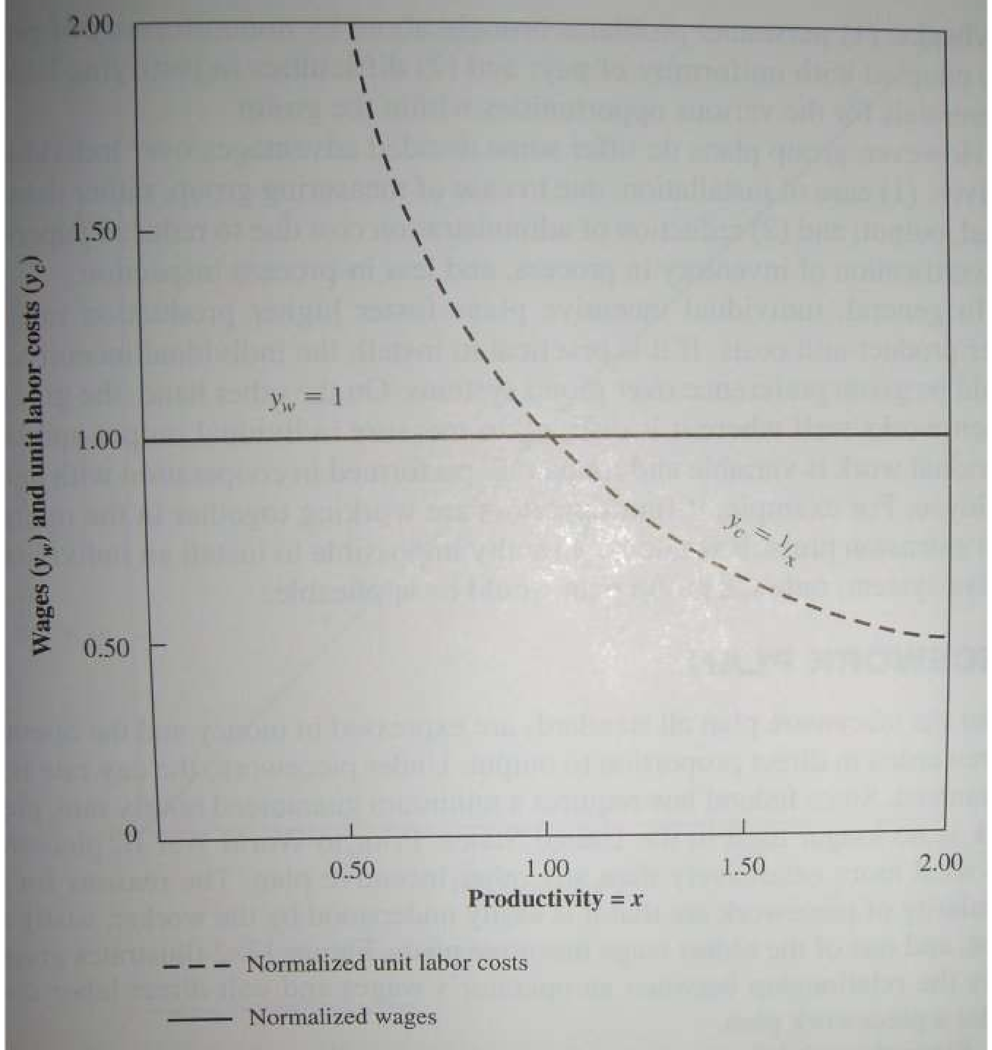

Figure 17-1 | Relationship between costs, wages, and productivity in day work plans.

Flexible Compensation Plans

- Flexible compensation plans include all plans in which the worker’s compensatioon is related to output.

  a) Simple Individual Plan

     Each employee’s performance for the period governs that employee’s compensation.

  b) Group Plans

     - Applicable to 2 or more people who are dependent on one another working as a team.
     - Echa employee’s compensation is based on his/her base rate and on the performance of the entire group for the period.

Disadvantages of Group Plans

1. Personnel problems brought about by nonuniformity of production, coupled with uniformity of pay.

2. Difficulties in justifing base rate differentials for the various opportunities within the group.

Advantages of Group Plans

1. Ease of installation, due to ease of measuring group, rather than individual, output.

2. Reduction of administration cost due to reduced paperwork, less verification of inventory in process, and less in-process inspection.

Flexible Compensation Plans

- In general, individual incentive plans foster higher production rates and lower product unit costs

- Group systems are practical to install.

Piecework Plan

- All standards are expressed in money
- Operators are rewarded in direct proportion to output
- The day rate is not guaranteed

    (Federal Law in the USA guarantees hourly rate, so Piecework Plan is not used in the USA)

Piecework Plan

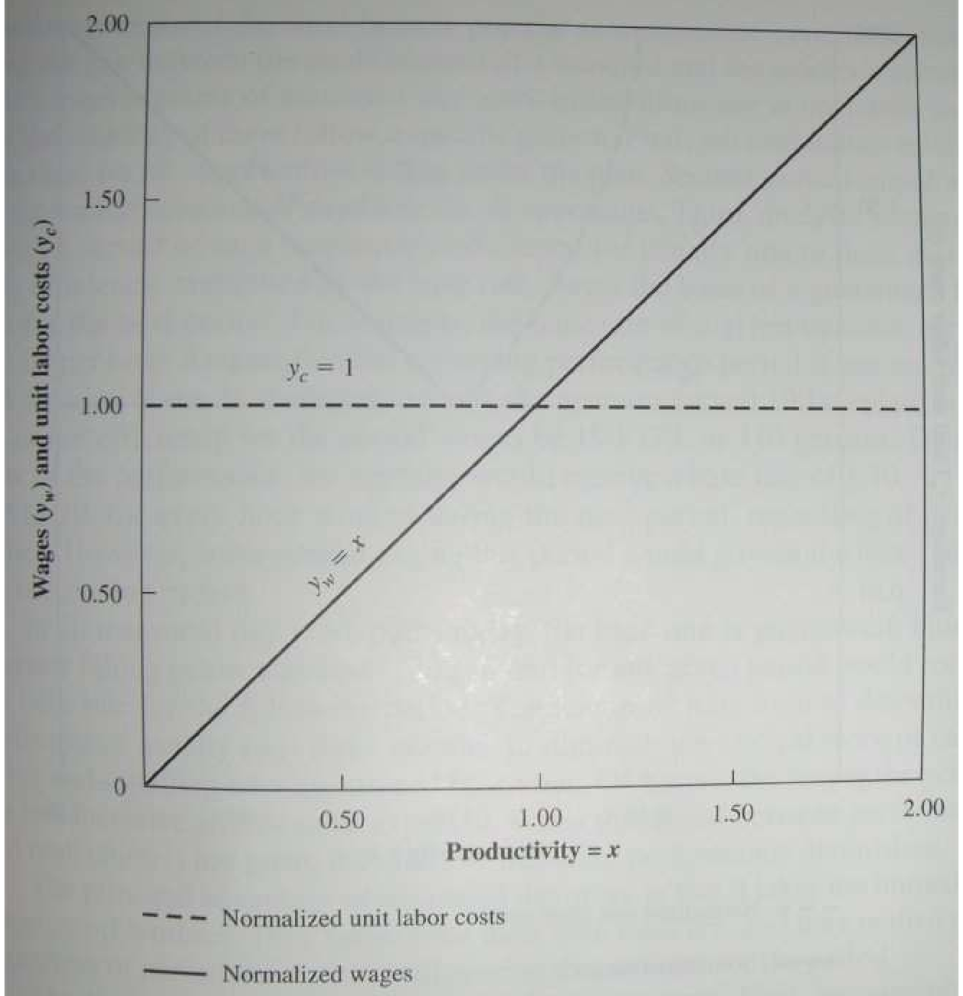

Figure 17-2 | Relationship between costs, wages, and productivity in piecework.

Standard Hour Plan

- Guaranteed base rate (reduces clerical work)
- Most popular incentive plan in the USA

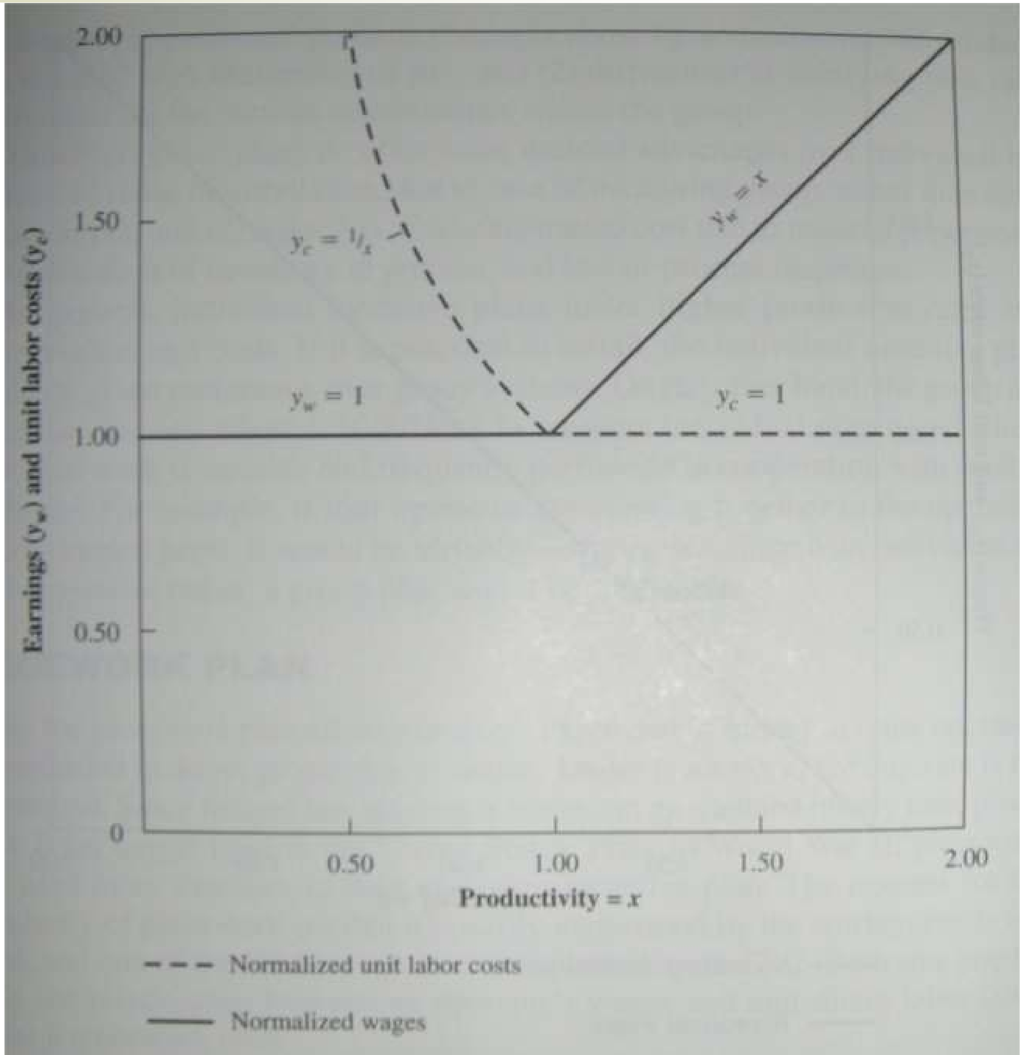

Figure 17–3 | Relationship between costs, wages, and productivity in the standard hour plan.

Standard Hour Plan

- Ex:

373 pieces per 8 hr shift (0.02142 hrs/piece)

- If the operator base rate = $12,
  money rate = 12 x 0.02142 = $0.257/piece

- If the operator produced 412 pieces in 8 hr shift
  wage for the day = 412 x 0.257 = $105.88

  hourly wages = $105.88 / 8 = $13.24

  operator efficiency = 412 / 373 = 110%

Measured Day Work

1. Job evaluations establish base rates for all opportunities falling under the plan
2. Some form of work measurement determines standards for all operations
3. Analysts keep progressive record of each employee's efficiency for usually one to three months

guaranteed base = efficiency x base rate
rate for next period

Measured Day Work

- Ex:
  - Base rate of an operator = $12/hr
  - Assume the governing performance period is one month or 173 hours during this month, operator earned 190 standard hours

    efficiency for this period = 190 / 173 = 110%

  Therefore, operator would receive a base rate;

    1.10 x 12 = $13.20 for every hour during next period

- In all measured day work plans, the base rate is guaranteed, thus an operator falling below standard (100%) for any given period would receive the base rate for the following period.

Gain Sharing Plans

- Also known as productivity sharing plans, are characterized by sharing the benefits of improved productivity, cost reduction, and/or quality improvement.
- Management computes incentives on a monthly basis
- Only 2/3 of the incentive earned in a given pay period is distributed. The remaining 1/3 is placed in a reserve fund to be used for any month in which performance falls below standard.

Gain Sharing Plans

1. Scanlon
2. Rucker

measurment unit : $, measure the payroll of the firm against total $ sales and compare the result to the average of the past several years

3. IMPROSHARE – measurement unit : hours, measures output against total hours worked

1. Scanlon Plan

3 fundamental principles

i. Bonus payment
ii. Identitiy with the company or firm
iii. Employee involvement

$$\text{Base ratio} = \frac{\text{(Payroll costs to be included)}}{\text{(Value of production)}}$$

1. Scanlon Plan

- Ex:
  - Assume base ratio = 15% during the past month
  - Value of production = $2 millions

  Allowed labor = 0.15 x 2,000,000 = $300,000

  - Actual labor cost = $270,000

  Bonus pool = $300,000 - $270,000 = $30,000

- Typically, the company keeps a portion of this pool to provide for capital expenditures.
- The remainder is distributed to the employees as a monthly bonus, based on a percentage of their wages.

2. Rucker Plan

- Identifies the relationship between payroll costs and actual net sales plus/minus inventory changes minus purchased materials and services.

- Provides a bonus in which everyone, excluding top administration, shares a percentage of the gains.

2. Rucker Plan

- Ex:

Net sales (for period of 1 year)	$1,500,000
Inventory change (decrease)	- 200,000
	$1,300,000
Less materials and supplies used	- 700,000
Production value added	$600,000

2. Rucker Plan

$$\text{Rucker standard} = \frac{\text{Payroll costs included in group}}{\text{Production value}}$$

Assume the labor costs in the base 1-year period = $350,000

Rucker standard = $350,000 / $ 600,000 = 0.583

- Thus, in any future period (usually 1 month) that the actual labor costs are less than 0.583 of production value, employees earn bonuses.
- Earned Bonus
  - 30% -> reserved for deficit months
  - 50% -> distirbuted to employees
  - 20% -> kept by the company to provide improvements

3. IMPROSHARE
(IMproved PROductivity through SHARing)

- The goal is to produce more products in fewer hours of direct and indirect labor.

- Compares the work hours saved for a given number of units produced to the hours required to produce the same number of units during a base period.

- The savings are shared by the company and the direct and indirect employees involved with the production of the product.

3. IMPROSHARE
(IMproved PROductivity through SHARing)

- Base productivity is measured by comparing the labor hour value of completed production to the total labor input for this production. Only acceptable products are counted.

$$\text{Work hour standard} = \frac{\text{Total production work hours}}{\text{units produced}}$$

3. IMPROSHARE
(IMproved PROductivity through SHARing)

- Ex. 17.1: IMPROSHARE incentive plan

  122 employees produced 65,500 units over a 50-week period.
  Total hours worked were 244,000

  work hour standard = 244,000 / 65,500 = 3.725 hrs/unit

  If in a week, 125 employees worked 4908 hours and produced 1,650 units,

    value of the output = 1,650 x 3.725 = 6,146.25 hrs

    the gain = 6,146.25 - 4,908 = 1,238.25 hrs

    50% goes to employees => 1,238.25 / 2 = 619.125 hours

    bonus / additional pay to each employees => 619.125 / 4908 = 12.6%

    company benefit -> unit labor cost (3.725 hrs/unit) reduced to:

      (4908 + 619.125) / 1650 = 3.35 hrs/unit

Employee Stock-Ownership Plans (ESOP)

- These plans involved the creation of a trust that holds company stock for its employees.

- Although 100% worker ownership plants are rare, an ESOP can be used to develop such an organization.

Profit Sharing

1. Cash Plans

   Involve the periodic distribution of money from the profits of the business to the employees.

2. Deferred Plans

   Feature the periodic investment of portions of the profits for employees.

3. Combined Plans

   Arrange to have some of the profits invested for retirement and similar benefits, and some distributed as cash rewards

Indirect Financial Plans

1. Fair and relatively high base rates
2. Equitable promotion practices
3. Sound suggestion systems
4. Guaranteed annual wage
5. High fringe benefis

Build healthy employee attitudes, which stimulate and increase productivity.