

Problem solving.

Rewarding

4 Calculating the wages and the salary

4.1. Assuming that there is 20% tax on the employer after the gross wages it pays to its employees...

- a) *...what will be the maximum gross salary in a job that's value is 100 000 HUF for the employer?HUF*
- b) *How much tax the employer will pay?HUF*
- c) *If the employee also has to pay a tax based on its earnings (tax rate is 10% of the salary) than what is the minimum gross salary the employer must offer to attract an employee with a net reservation wage of 50 000 HUF?HUF*
- d) *Will the employee be hired?*
- e) *What is the minimum total labor cost if the company pays the above calculated minimum gross salary?HUF*
- f) *How much tax the employee will pay after this minimum gross salary?HUF*
- g) *How much is the sum of the taxes paid by the employer and the employee altogether after this minimum gross salary?HUF*

SOLUTION

- a) (gross salary) + (employer tax) should not exceed 100,000 HUF
 $(\text{gross salary}) + (\text{gross salary})(0.20) \leq 100,000 \text{ HUF}$
 $(1.20)(\text{gross salary}) \leq 100,000 \text{ HUF}$
 $(\text{gross salary}) \leq 100\,000 / 1.20 = 83,333 \text{ HUF}$
- b) The employer tax is $83,333(0.2) = 16,667 \text{ HUF}$
- c) (net wage) = (gross salary) – (employee tax)
(net wage) $\geq 50,000$
 $(\text{gross salary}) - (\text{employee tax}) = (\text{gross salary}) - (\text{gross salary})(0.10) \geq 50,000$
 $(1 - 0.10)(\text{gross salary}) \geq 50,000 \text{ HUF}$
 $(\text{gross salary}) \geq 50,000 / 0.90 = 55,556 \text{ HUF}$
- d) Yes, because the calculated maximum gross salary (83,333 HUF) is greater than the minimum gross salary (55,556 HUF).
- e) The total labor cost is [(gross salary) + (employer tax)]. That is: $55,556(1.20) = 66.667 \text{ HUF}$
- f) $55,556(0.1) = 5,556 \text{ HUF}$
- g) Sum of the taxes = $5,556 + 16,667 = 22,223 \text{ HUF}$

4.2. Assuming that there is 28.5% tax on the employer after the wages...

- a) *...what will be the maximum gross salary in a job that's value is 300 000 HUF for the employer?HUF*
- b) *If the employee also has to pay a tax based on its earnings (tax rate is 34.5% of the salary) than what is the minimum total labor cost of employing a worker with a net reservation wage of 200 000 HUF?HUF*
- c) *Is there a chance for hiring?*

SOLUTION

- a) $300\,000 / 1.285 = 233,463 \text{ HUF}$ (the tax is $233,463 \times 0.285 = 66,540 \text{ HUF}$)
- b) $200\,000 \text{ HUF} / (1 - 0.345) \times 1.285 = 305\,344 \text{ HUF} \times 1.285 = 392\,367 \text{ HUF}$ (tax of the employee is $305,344 \times 0.345 = 105\,344 \text{ HUF}$, tax of the employer is $305,344 \times 0.285 = 87\,023 \text{ HUF}$)

- c) Since the reservation gross salary of the employee is greater than the maximum acceptable gross salary offer of the employer (87 023 HUF > 66,540 HUF) there will be no deal.

5 Calculating the wages and the salary

The personal base hourly wage rate is 600 HUF for 100% performance.

a) Calculate the wage actually earned in the following wage systems:

Linear variable pay:

$P = 70\%$	 HUF/hr
$P = 89\%$	 HUF/hr
$P = 105\%$	 HUF/hr

25% fixed and 75% linear variable pay:

$P = 70\%$	 HUF/hr
$P = 89\%$	 HUF/hr
$P = 105\%$	 HUF/hr

50% fixed and 50% linear variable pay:

$P = 70\%$	 HUF/hr
$P = 89\%$	 HUF/hr
$P = 105\%$	 HUF/hr

b) What is the lesson for the motivational force of the fixed and variable pay?

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SOLUTION

Actual wages in order of the questions:

$$600(0.70) = 420; 600(0.89) = 534; 600(1.05) = 630$$

$$0.25(600) + 0.75(600)(0.70) = 465; 0.25(600) + 0.75(600)(0.89) = 550.5;$$

$$0.25(600) + 0.75(600)(1.05) = 622.5$$

$$0.50(600) + 0.50(600)(0.70) = 510; 0.50(600) + 0.50(600)(0.89) = 567; 0.50(600) + 0.50(600)(1.05) = 615$$

6 Efficiency wages

6.1 The employer observed the following relationship between wage levels and MRP_L .

a) Calculate the efficiency wage level.

b) Calculate the total profit from employing 10 identical workers.

Wage:	1	2	3	4	5	6	7	8	9	10
MRP_L :	1.0	2.5	3.55	4.25	5.15	6.15	7.14	8.12	9.11	10.1

SOLUTION

a) The efficient wage level is the one where the difference between the marginal revenue and the marginal cost (thus the marginal contribution to profit) is the highest.

The marginal contributions are:

Wage:	1	2	3	4	5	6	7	8	9	10
MCP_L :	0	0.5	0.55	0.25	0.15	0.15	0.14	0.12	0.11	0.1

Solution is wage = 3.

b) $10 \cdot 0.55 = 5.5$