**NANYANG TECHNOLOGICAL UNIVERSITY**
**SCHOOL OF SOCIAL SCIENCES**
**SEMESTER 1 AY25-26**

# HE1002 MACROECONOMICS I

## PROBLEM SET 3

**3-1**
For each of the following situations, is Rick Alexander (from the chapter-opening story) counted as employed, unemployed, or not in the labor force by the Bureau of Labor Statistics?

a. Alexander is self-employed in his old job as a carpenter.

b. Alexander moves to Florida and begins looking for work.

c. Alexander feels discouraged looking for work and stops applying for jobs.

d. Alexander starts looking for work again.

e. Alexander starts work at a new job.

**3-2**
Consider the economy whose data appear in Table 9P-1.

Table 9P-1

| Group of people | Number of people in group |
|---|---|
| Working-age population | 130,000 |
| Labor force | 65,000 |
| Unemployed | 12,000 |

a. What is the unemployment rate?

b. What is the labor-force participation rate?

**3-3**

Table 9P-2 uses data for the year 2018, adjusted to be comparable to each other. All population values are in thousands.

Table 9P-2

| Country | Working-age population | Labor force | Employed | Unemployed | Unemployment rate (%) | Labor-force participation rate (%) |
|---|---|---|---|---|---|---|
| Japan | 74,517.5 | | 67,124.1 | 1,934.1 | | |
| France | | 29,620 | | 2,365.2 | | 88.0 |
| Germany | 52,967 | 41,674.4 | | | 3.57 | |

a. Fill in the blanks in the table.

b. In part a, you should have found that the unemployment rates of the three countries differ significantly from one another. Suggest three possible reasons to explain why the countries might have different unemployment rates.

**3-4**

Assume the equilibrium wage rate is $6. Draw a graph of the labor market to answer the following questions.

a. When the government introduces a minimum wage of $5.50, does unemployment increase, decrease, or stay the same compared to unemployment at the equilibrium wage?

b. When the government introduces a minimum wage of $6.50, does unemployment increase, decrease, or stay the same compared to unemployment at the equilibrium wage?

**3-5**

Assume that the labor demand equation for a fictional country is $L_d = 60 - 2w$, where $w$ is the wage per hour worked and $L_d$ is the number of workers demanded by firms. Assume also that the labor supply equation for that country is $L_s = 0.4(w)$, where $L_s$ is the number of people willing to work.

a. Find the equilibrium wage and quantity of labor employed.

b. At the equilibrium wage, how many people are unemployed?

c. How would the number of unemployed change if the supply of workers increased?

**3-6**

Suppose a firm's labor demand equation is $L_d = 60 - 2(w)$ and the labor supply equation that it faces is $L_s = -20 + 3(w)$, where $w$ is the wage per hour worked, $L_d$ is the number of workers demanded by firms, and $L_s$ is the number of people willing to work.

a. Find the equilibrium wage and quantity of labor employed.

b. The workers, thinking that their wages are too low, decide to strike. After tense negotiations, the firm decides to raise the wage by 50 percent. After the wage increase, how many people are unemployed?

**3-7**

Classify each of the following situations as either frictional, structural, or cyclical unemployment.

a. Maria has started looking for work after taking time off to have a baby.

b. Juan left high school without graduating and can't find any jobs he is qualified for.

c. Rohit had a job working on Wall Street but lost his job during the financial crisis.

d. Adam has just arrived in a new city and is looking for work.

e. Max wants to work as an air steward, but because the airline industry is heavily unionized there are very few jobs available.

f. Jada has just lost her job in a web start-up that was affected by a downturn in the economy.

**3-8**

For each of the following situations, would the unemployment rate increase, decrease, or stay the same?

a. A company begins paying efficiency wages above the equilibrium wage rate.

b. The number of workers covered by union contracts falls.

c. The government extends the duration of unemployment insurance.

**3-9**

Suppose a country has a 26-week limit on the duration that an unemployed person receives unemployment benefits. You collect some data and notice that workers in their 26th week of unemployment benefits somehow manage to find jobs at a much higher rate than other unemployed workers. What would this statistic tell you about the incentives involved with unemployment insurance?

**3-10**

Understanding that unemployment benefits give workers the incentive to not look for work until their benefits run out, suppose an economist suggested that instead of giving workers up to 26 weeks of unemployment benefits that end once the person finds work, a person who loses his or her job would just get a single big check for 26 weeks of benefits, regardless of how long the worker is unemployed. What are the advantages and disadvantages of this idea?