# The labor market

EC 235 | Fall 2023

# Materials

Required readings:

- Blanchard, ch. 7.

# Prologue

# Prologue

So far, our analysis of macroeconomic equilibrium have *ignored* what happens to *wages, employment*, and *prices.*

Recall that, for instance, our IS-LM model may generate higher *output* ($Y$) in a variety of ways.

But, in order to produce more goods and services, *more people* must be *employed*, and this affects the level of *wages* and *income distribution* in the economy.

Thus, now we add the *labor market* into our study of the macroeconomy.

# Prologue

[A look at the recent numbers]

[Labor Force Statistics from the Current Population Survey (CPS)]

# Prologue

## *Claudia Goldin Wins Nobel in Economics for Studying Women in the Work Force*

Her research uncovered the reasons for gender gaps in labor force participation and earnings. She is the third woman to win the prize.

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Claudia Goldin's wide-ranging work has delved into the causes of the gender wage gap and the evolution of women's participation in the labor market. Harvard University/EPA, via Shutterstock

# Prologue

## Jobs Gains Heat Up Even as the Federal Reserve Looks for Cooling

Fed officials are happy when the labor market looks strong, but they are trying to cool the economy down to fully wrangle inflation.

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"Labor demand still exceeds the supply of available workers," Jerome H. Powell, the Fed Reserve chair, said in September. Mandel Ngan/Agence France-Presse — Getty Images

# Prologue

## *U.A.W. Workers at Mack Truck Go on Strike*

The strike at the truck manufacturer by 4,000 members of the United Automobile Workers comes in the middle of the union's strikes at three large U.S. car companies.

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Workers for Mack Truck have been negotiating with the company for three months over a wide range of issues. Keith Srakocic/Associated Press

# Wage- and price-setting

# Wage- and price-setting

We can start *modeling* wage determination through the following equation:

$$W = P^e \cdot F(u, z)$$

where:

- $W$: aggregate *nominal* wage;
- $P^e$: *expected* price level;
- $u$: the *unemployment rate*;
- $z$: a variable catching *all other factors* that may determine wages.

# Wage- and price-setting

Why should workers bother about the *(expected) price level* when negotiating wages?

# Wage- and price-setting

Now, let us focus on *prices*.

As a first *simplifying assumption*, we will assume that expectations regarding the price level as as *accurate* as possible, so $P^e = P$.

Then, we have:

$$W = P \cdot F(u, z)$$

$$\frac{W}{P} = F(u, z)$$

# Wage- and price-setting

Then, *firms set* the price for their product based on the *costs* they face.

For the time being, we will assume a simple production function with only one factor of production (i.e., only one input):

$$Y = A \cdot N$$

where

- $Y$: output;
- $A$: labor productivity;
- $N$: number of workers (employment).

# Wage- and price-setting

Furthermore, we will consider a scenario of *imperfect competition*.

This means that firms can set a *markup rate (m)* on their final price:

$$P = (1 + m)W$$

And we can get to:

$$\frac{W}{P} = \frac{1}{(1 + m)}$$

# Wage- and price-setting

Again:

$$\frac{W}{P} = \frac{1}{(1 + m)}$$

What is the relation between the *real wage* and the *markup rate*?

# Equilibrium

# Equilibrium

*Equilibrium* in the labor market requires that the real wage chosen in *wage setting* be equal to the real wage implied by *price setting*.

In mathematical terms:

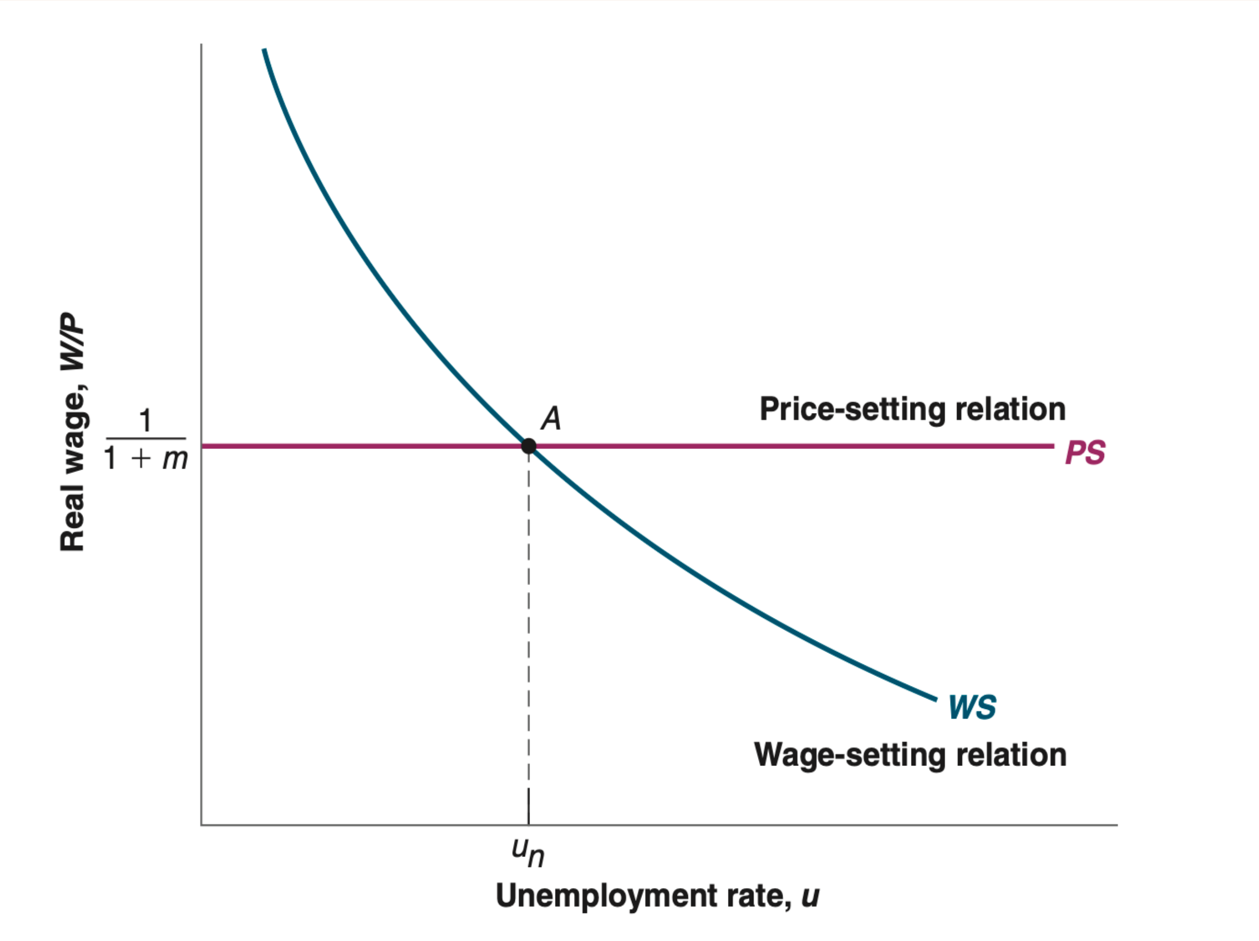
$$F(u_n, z) = \frac{1}{(1+m)}$$

where $u_n$ is the *"natural" rate of unemployment*.

# Equilibrium

The equilibrium rate of unemployment ($u_n$) is then a function of institutional factors $z$ and of the markup rate $m$.

# Equilibrium



# Equilibrium

Consider the following:

- What happens to the labor market equilibrium when, for instance, *unemployment benefits* increase?
- A weaker enforcement of existing *antitrust* legislation?