Lecture 8. The Labor Market

Reading: Blanchard, Chapter 7

In the previous lectures…

- The IS-LM model: General equilibrium in the short run.
- The goods market (IS) + The money market (LM)

- In the short run, P does not change. Or, at least, π and π^e are given.
- Output is largely determined by the demand Z.
- So far, we have studied the demand side of the economy. We now start to think about the supply (production) side of the economy. That is, firms hire workers to produce goods and services.

Outline

- Basic facts about the labor market
  - Definition and cyclicality of the related variables

- A model of the labor market
  - Price determination
  - Wage determination
  - The natural rate of unemployment and the natural level of output

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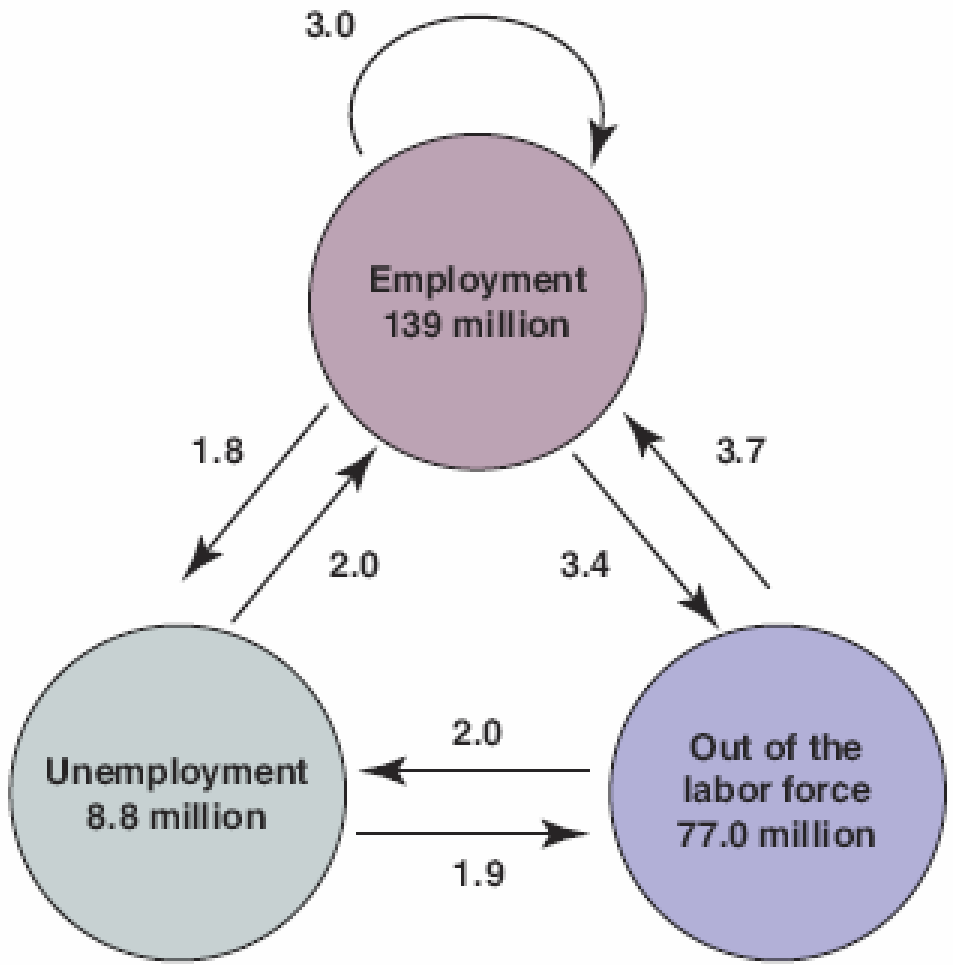
Some Definitions

- Employment (N)
- Unemployment (U)
- Out of the labor force (O)

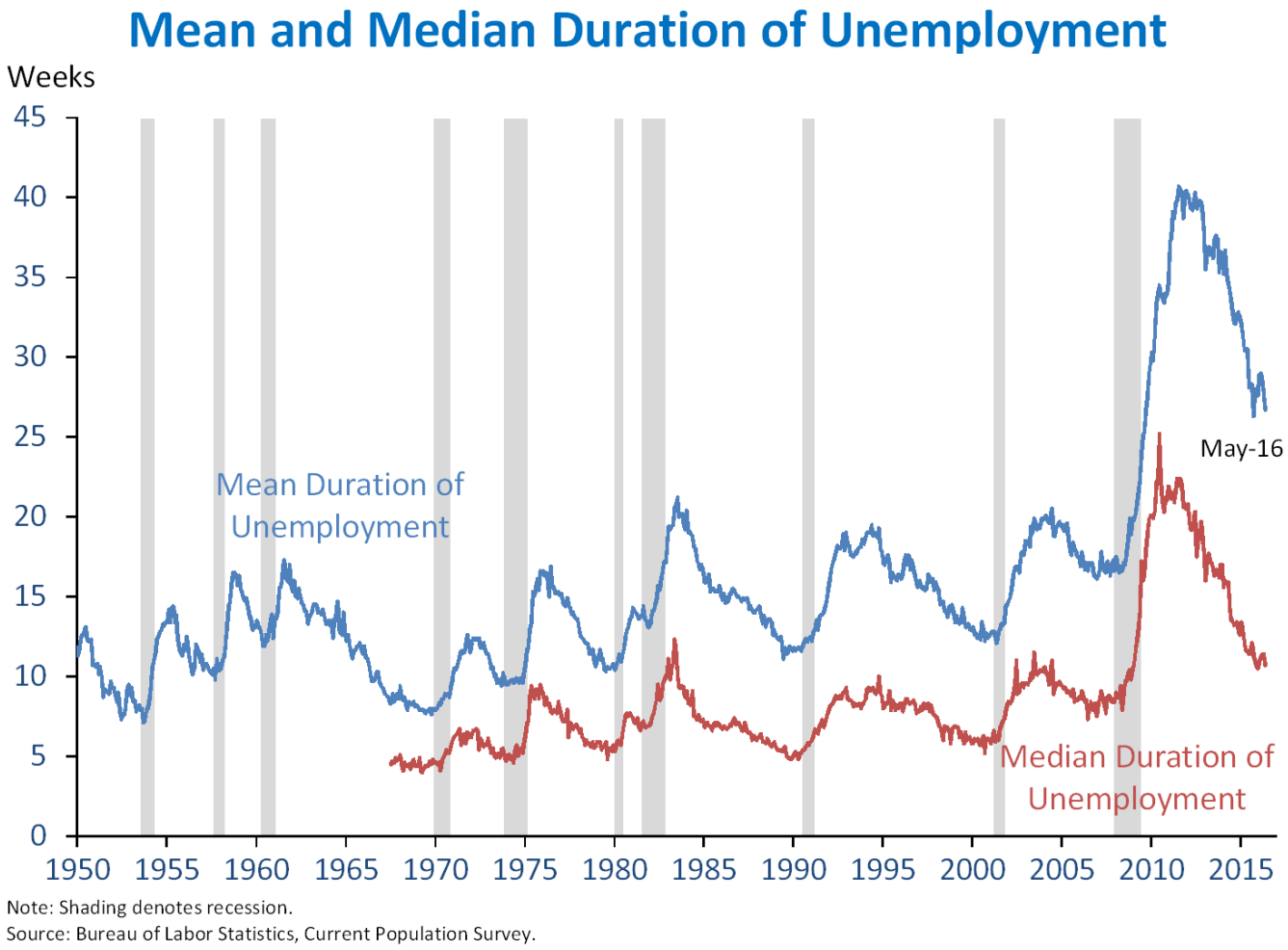
- Labor force (L) =
- Unemployment rate (u) =
- Employment rate =
- Participation rate =
- Where are discouraged workers?

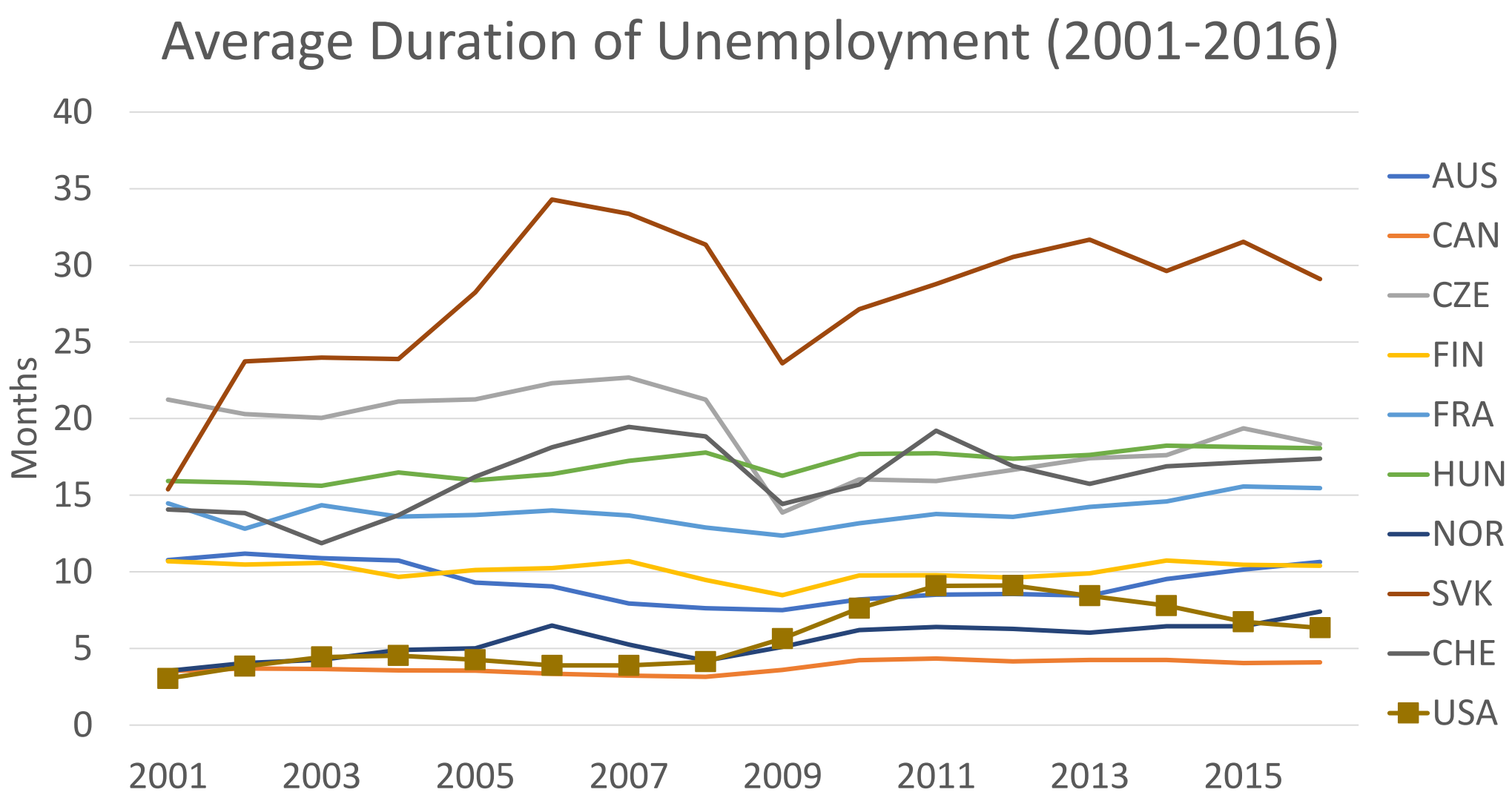


Duration of unemployment in the US

- Average duration of unemployment
  = the average length of time people spend unemployed
  $\approx$ 3 months

- Source: Jason Furman (2016), "The Employment Situation in May" https://obamawhitehouse.archives.gov/blog/2016/06/03/employment-situation-may



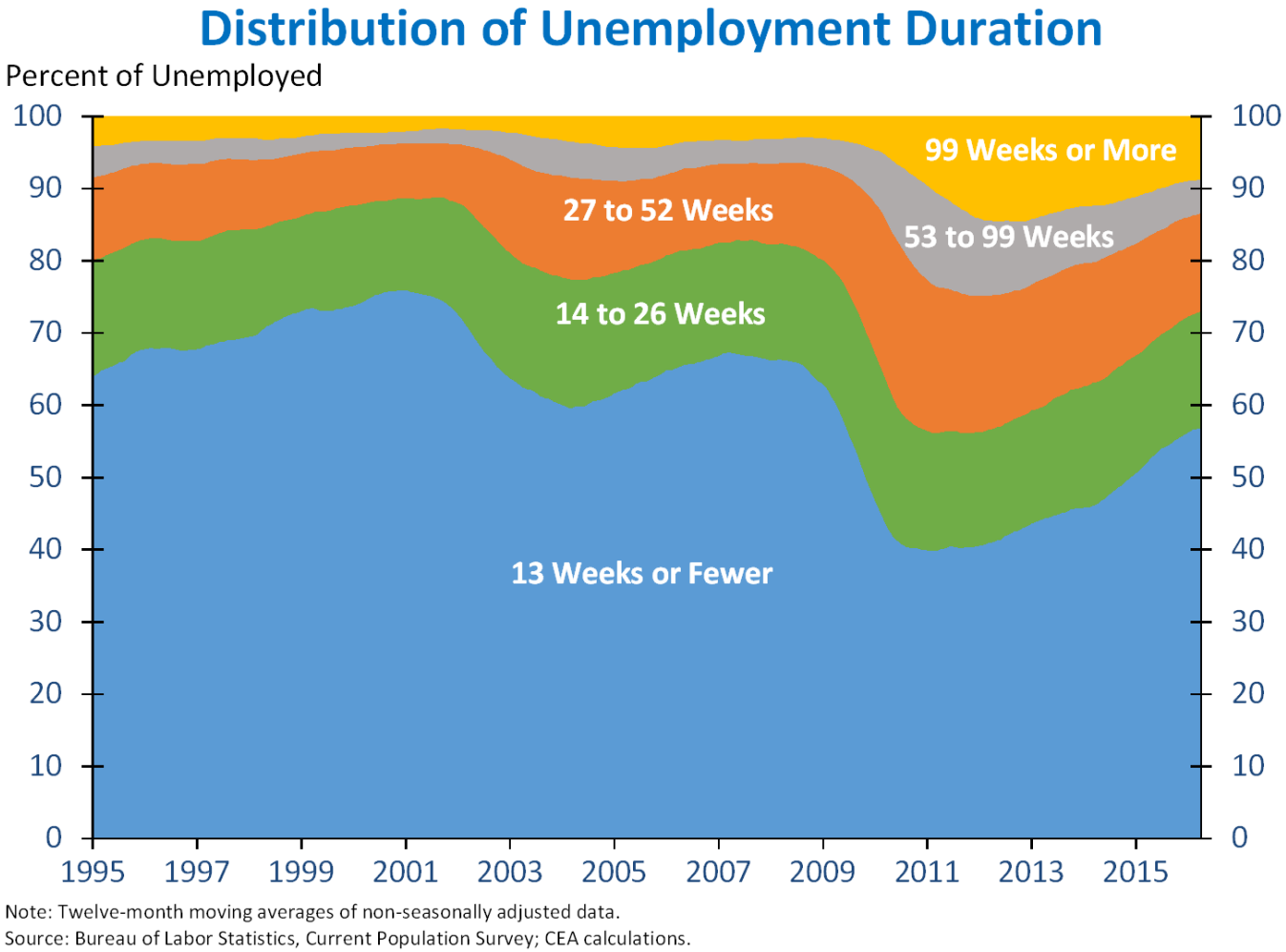


- In many European countries, the average duration is much longer than in the US.

- Source: https://stats.oecd.org/index.aspx?DataSetCode=AVD_DUR

Duration of unemployment in the US

- For most (but obviously not all) of the unemployed, being unemployed is more a quick transition than a long wait between jobs.
- When u is higher, the duration of unemployment tends to become longer.



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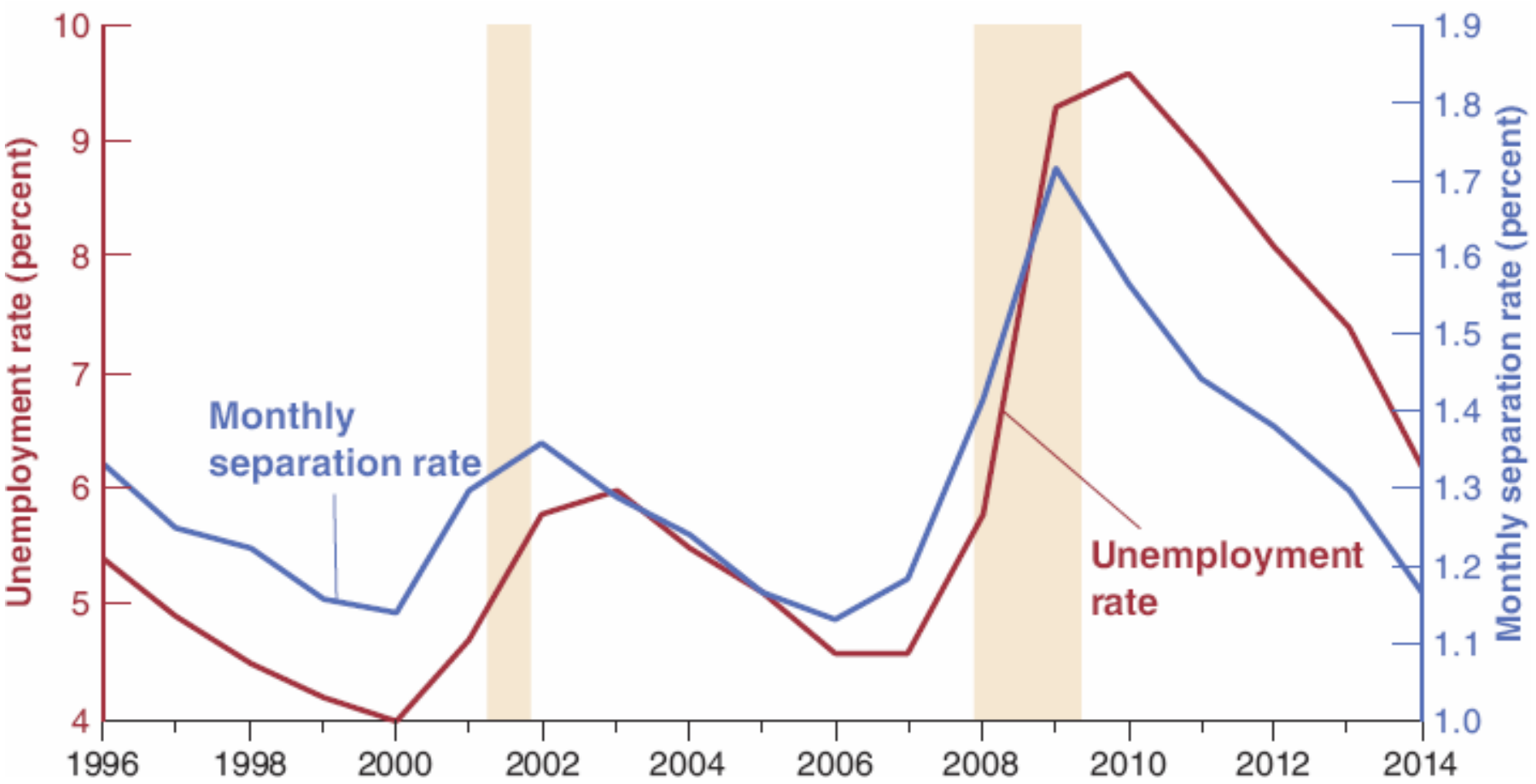
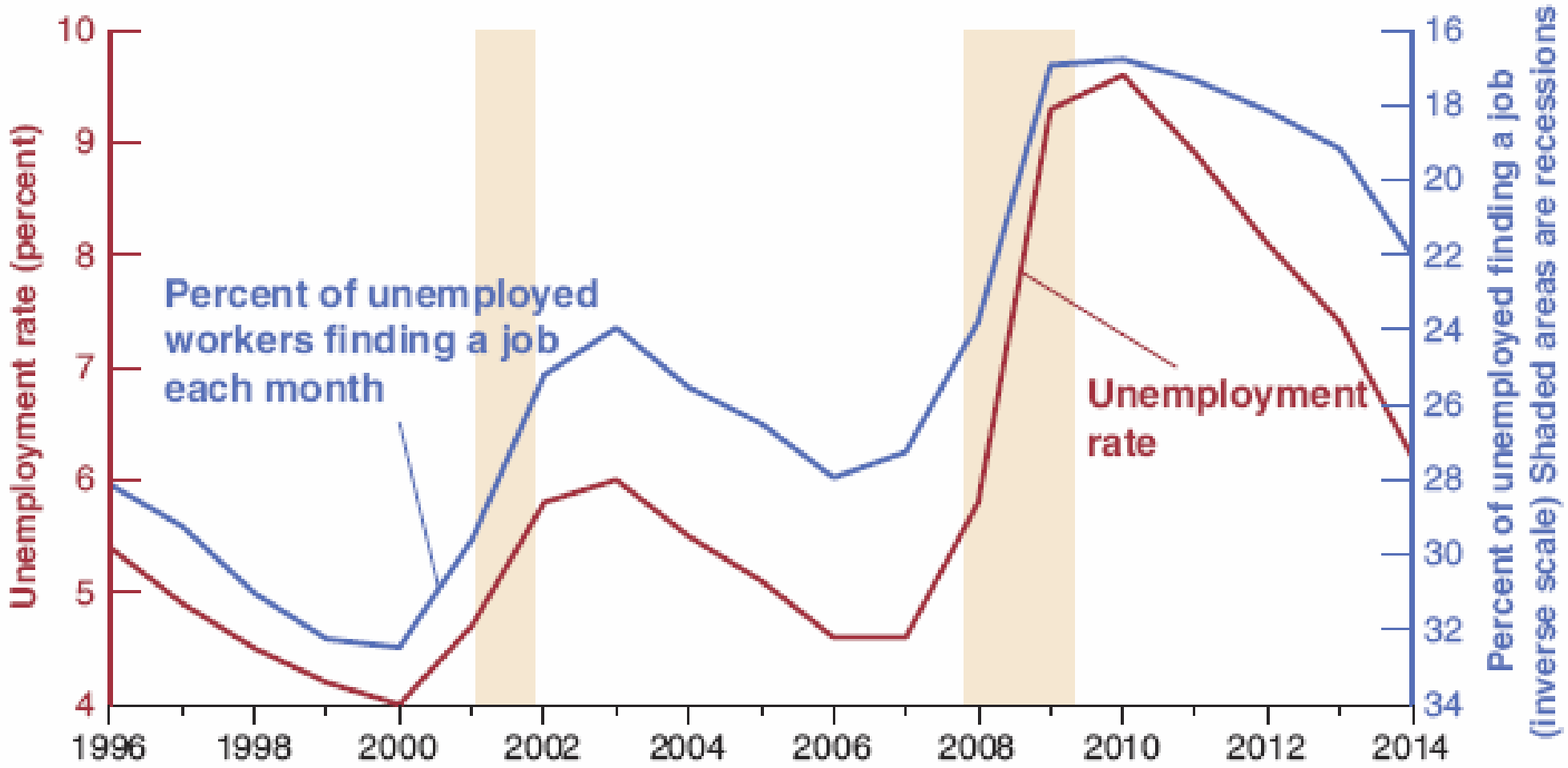


- When u is high, employed workers face a high probability of losing their job.



- When u is high, unemployed workers face a low probability of finding a job; equivalently, they can expect to remain unemployed for a long time.

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Price determination

- Price = (1 + Markup) × Marginal cost of production
- Markup reflects the market power. It is 0 in a competitive market.

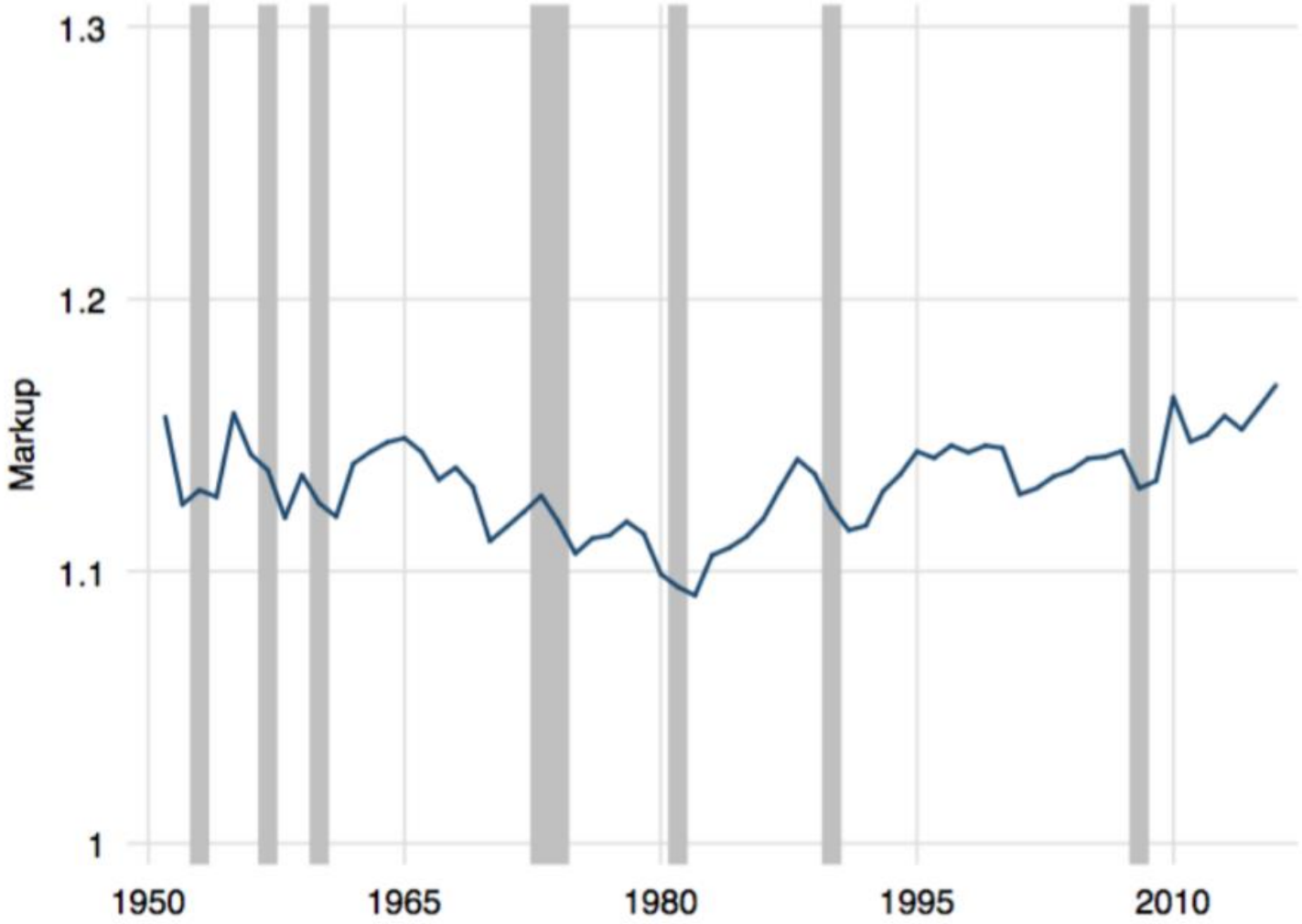
- We assume the following production function:

- The cost of hiring one more worker = W
- Marginal product of labor = $\mathcal{A}$
- Marginal cost of production = $W/\mathcal{A}$

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

- Price = (1 + Markup) × Marginal cost of production

- m: markup
- Marginal cost of production $= W/\mathcal{A}$.



- $1 + m$ in the US. There is a big debate about a rising trend in the markup since the 1980s, implying more profit for firms and less labor share.
- Source: Traina, James (2018), Is aggregate market power increasing? Production trends using financial statements, *Working paper.*

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Wage determination

- We assume that

Aggregate nominal wage = Marginal product of labor
$\times$ Expected price level
$\times F$(unemployment rate, all other things)

- Recall that c_0 in the consumption function, $C(Y_D)$, represents the effect of all variables other than Y_D. z has a similar role here.

Bargaining interpretation

$$W = \mathcal{A} P^e F(u, z).$$

$$- \quad +$$

- Workers bargain with their employers to negotiate salaries, working conditions, etc. either collectively (labor union) or individually.
- $\mathcal{A}$: A worker can produce $\mathcal{A}$ amount of goods. The labor compensation, W, should be based on the productivity of the worker.
- P^e: People care about the . But wages are "sticky." Nominal wages are typically set for a year.

Bargaining interpretation

$$W = \mathcal{A}P^e F(u, z).$$

$$- \quad +$$

- Workers bargain with their employers to negotiate salaries, working conditions, etc. either collectively (labor union) or individually.
- u: Workers' bargaining power is when u is high. When $u \uparrow$, it is easier for firms to find replacement workers, whereas it is harder for workers to find another job.
- z: unemployment insurance, employment protection, etc.

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The Natural Rate of Unemployment

- The equilibrium (or natural) rate of unemployment u when .

- The Wage-Setting Relation:

$$W = \mathcal{A}P^e F(u, z) \quad \Rightarrow$$

- The Price-Setting Relation:

$$P = (1 + m)\frac{W}{\mathcal{A}} \quad \Rightarrow$$

- WS Relation: $W/P = \mathcal{A}F(u, z)$
- PS Relation: $W/P = \mathcal{A}/(1+m)$

- The natural rate of unemployment u_n satisfies the following condition:

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

- It depends on z and m.

When unemployment benefit ↑

- WS Relation: $W/P = \mathcal{A}F(u, z)$
- PS Relation: $W/P = \mathcal{A}/(1+m)$

- z ↑. As a result, for each u, the real wage $W/P = \mathcal{A}F(u, z)$ increases. So, the WS curve shifts upward.

- u_n ↑

More “business-friendly” environment

- Ex) A less stringent enforcement of existing antitrust legislation
- WS Relation: $W/P = \mathcal{A}F(u, z)$
- PS Relation: $W/P = \mathcal{A}/(1 + m)$

- $m \uparrow$

- $u_n \uparrow$

In the next class…

- We derive the Phillips curve, which describes the equilibrium relationship in the labor market in terms of π and u.

- The Phillips curve itself takes a central position in policy debates.
- It will be another piece for our IS-LM-PC model, which will be developed in Chapter 9 (Lecture 10).