

ECON 3010
Intermediate Macroeconomics

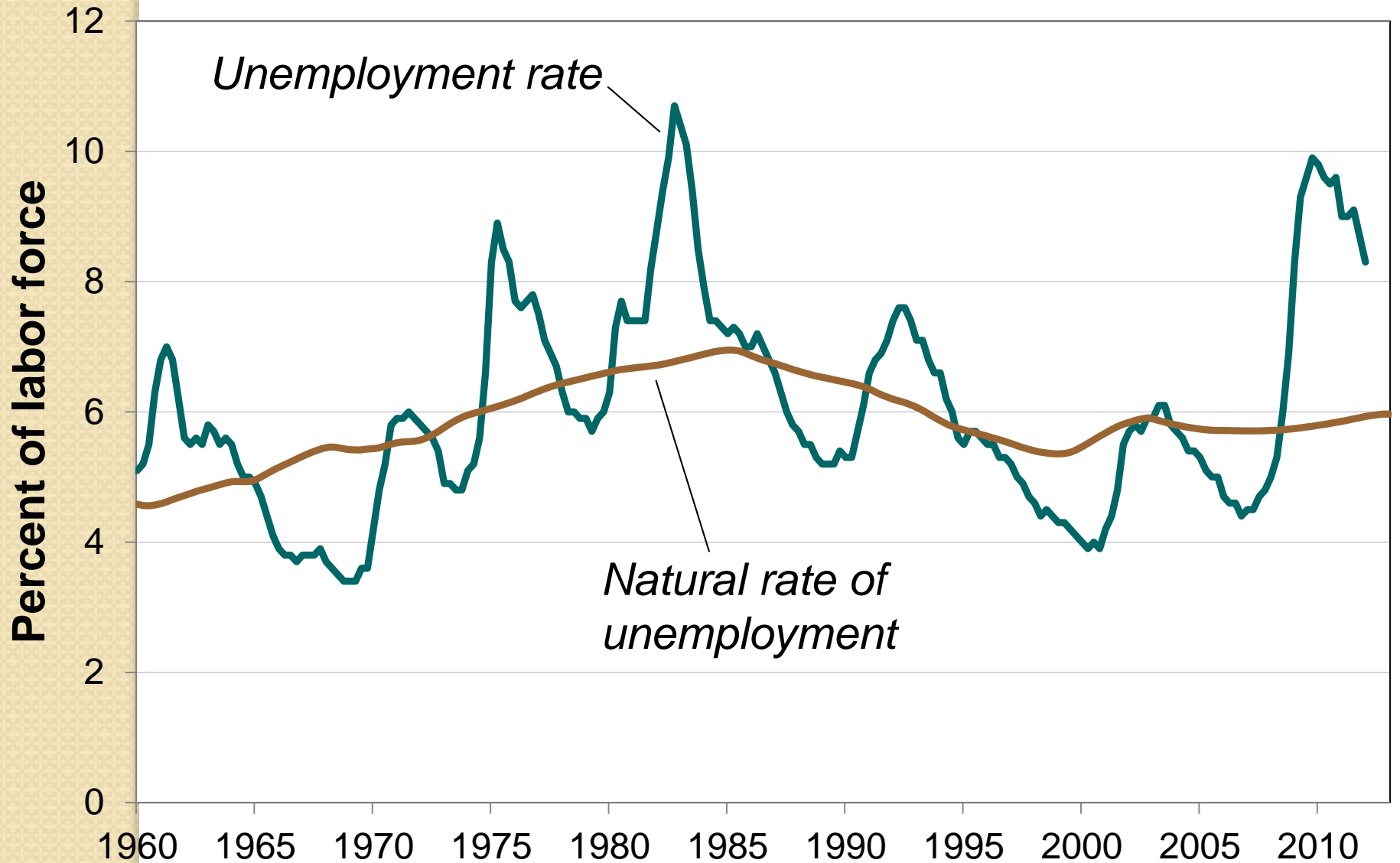
Chapter 7

Unemployment

Natural rate of unemployment

- **Natural rate of unemployment:**
The average rate of unemployment around which the economy fluctuates.
- In a recession, the actual unemployment rate rises above the natural rate.
- In a boom, the actual unemployment rate falls below the natural rate.

Actual and natural rates of U.S. unemployment



A first model of the natural rate

Notation:

L = # of workers in labor force

E = # of employed workers

U = # of unemployed

U/L = unemployment rate

Assumptions:

1. L is exogenously fixed.

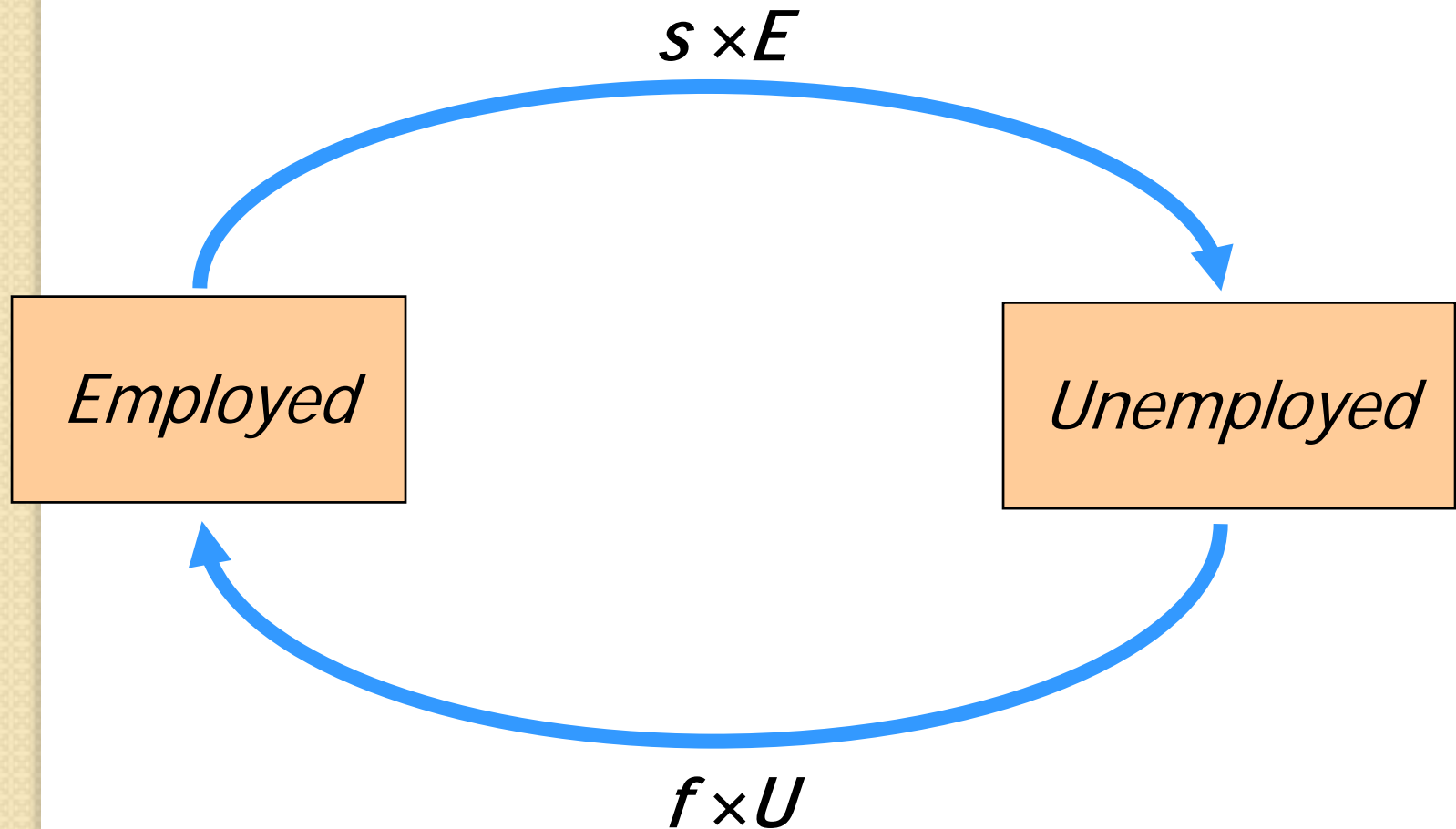
2. During any given month,

s = **rate of job separations**,
fraction of employed workers
that become separated from their jobs

f = **rate of job finding**,
fraction of unemployed workers
that find jobs

s and f are exogenous

The transitions between employment and unemployment



The steady state condition

- Definition: the labor market is in **steady state**, or long-run equilibrium, if the unemployment rate is constant.
- The steady-state condition is:

$$s \times E = f \times U$$

of employed people who lose or leave their jobs

of unemployed people who find jobs

Finding the “equilibrium” U rate

$$\begin{aligned}f \times U &= s \times E \\&= s \times (L - U) \\&= s \times L - s \times U\end{aligned}$$

Solve for U/L :

$$(f + s) \times U = s \times L$$

so,

$$\frac{U}{L} = \frac{s}{s + f}$$

Example:

- Each month,
 - 1% of employed workers lose their jobs ($s = 0.01$)
 - 19% of unemployed workers find jobs ($f = 0.19$)
- Find the natural rate of unemployment:

$$\frac{U}{L} = \frac{s}{s + f} = \frac{0.01}{0.01 + 0.19} = 0.05, \text{ or } 5\%$$

Why is there unemployment?

- If job finding were instantaneous ($f = 1$), then all spells of unemployment would be brief, and the natural rate would be near zero.
- There are two reasons why $f < 1$:
 1. job search
 2. wage rigidity

Job search & frictional unemployment

- **frictional unemployment:** caused by the time it takes workers to search for a job
- occurs even when wages are flexible and there are enough jobs to go around
- occurs because
 - workers have different abilities, preferences
 - jobs have different skill requirements
 - geographic mobility of workers not instantaneous
 - flow of information about vacancies and job candidates is imperfect

Public policy and job search

Government programs affecting unemployment include:

- ***Government employment agencies*** disseminate info about job openings to better match workers & jobs.
- ***Public job training programs*** help workers displaced from declining industries get skills needed for jobs in growing industries.

Unemployment insurance (UI)

- UI pays part of a worker's former wages for a limited time after the worker loses his/her job.
- UI increases search unemployment, because it reduces
 - the urgency of finding work &
 - the rate of job finding, f
- Studies: The longer a worker is eligible for UI, the longer the average spell of unemployment.

Benefits of UI

- By allowing workers more time to search, UI may lead to better matches between jobs and workers, which leads to greater productivity and higher incomes.

Why is there unemployment?

The natural rate of unemployment: $\frac{U}{L} = \frac{s}{s + f}$

- Two reasons why $f < 1$:

DONE ✓

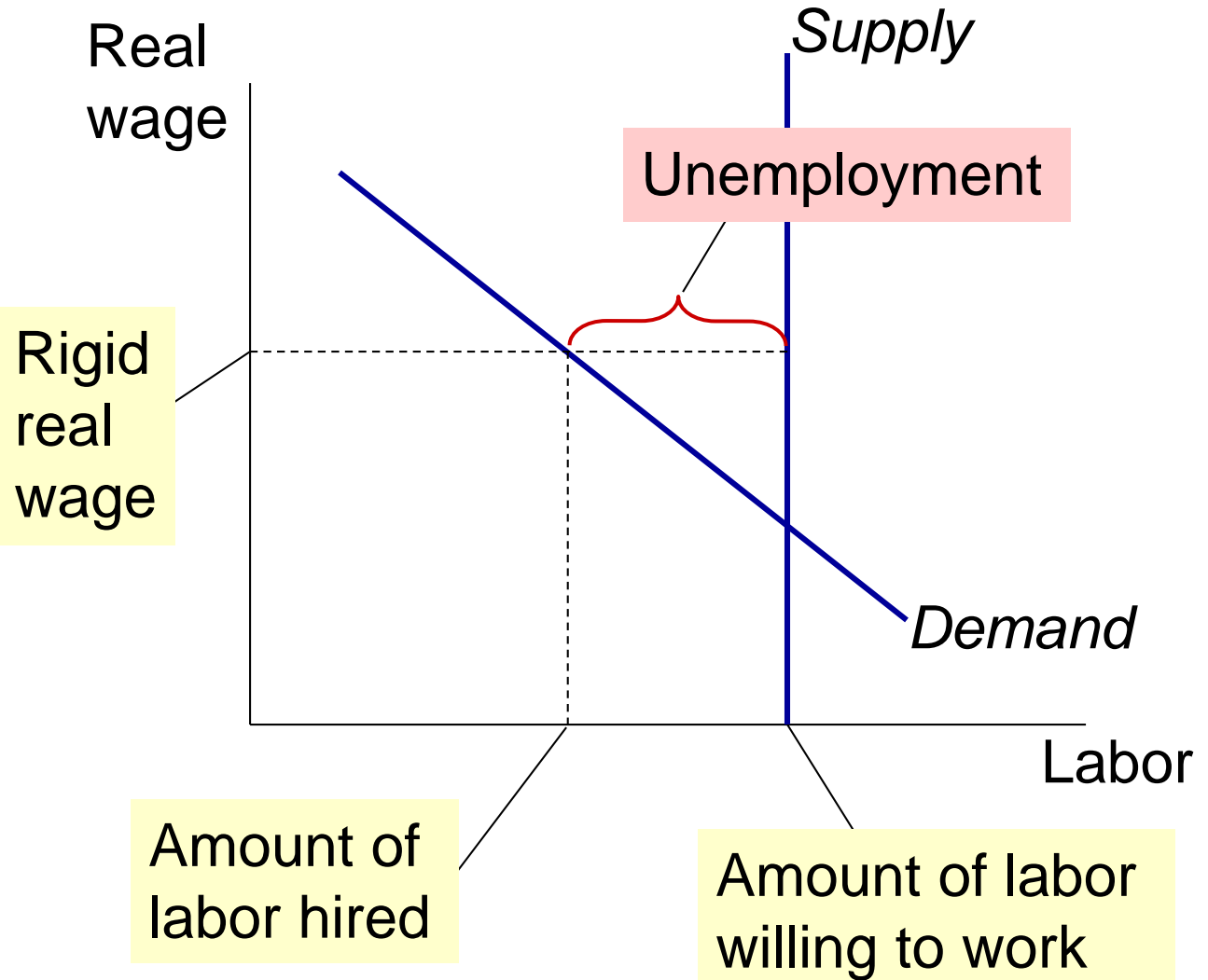
1. job search

Next →

2. wage rigidity

Unemployment from real wage rigidity

This leads to job rationing and is called **structural unemployment**.



Reasons for wage rigidity

1. Minimum wage laws
2. Labor unions
3. Efficiency wages

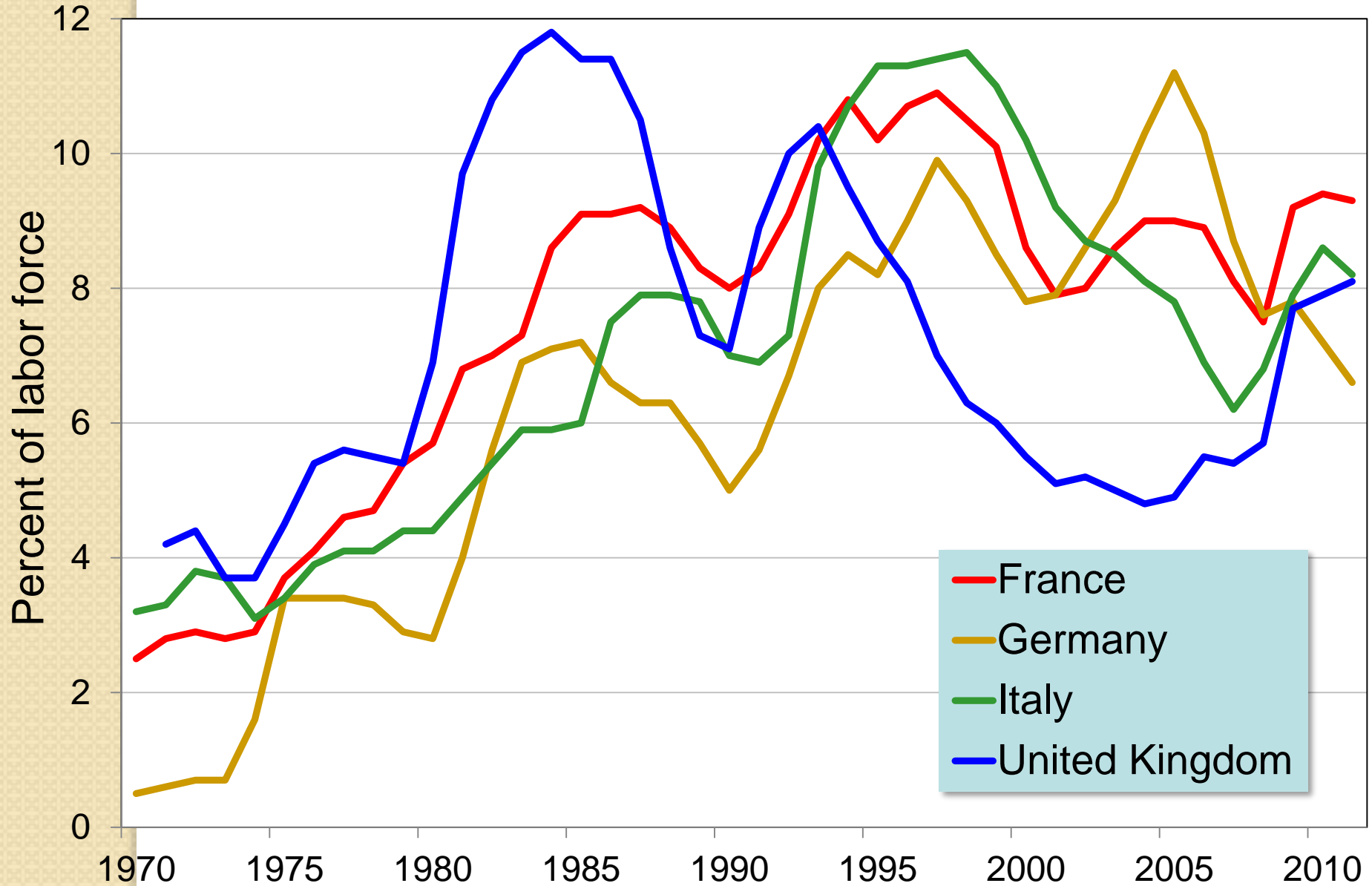
I. The minimum wage

- The minimum wage may exceed the eq'm wage of unskilled workers, especially teenagers.
- But, the minimum wage cannot explain the majority of the natural rate of unemployment, as most workers' wages are well above the minimum wage.

2. Labor unions

- Unions exercise monopoly power to secure higher wages for their members.
- When the union wage exceeds the eq'm wage, unemployment results.
- **Insiders:** Employed union workers whose interest is to keep wages high.
- **Outsiders:** Unemployed non-union workers who prefer eq'm wages, so there would be enough jobs for them.

Unemployment in Europe, 1960–2011



Percent of workers covered by collective bargaining, selected countries

United States	13%
United Kingdom	35
Switzerland	48
Spain	80
Sweden	92
Germany	63
France	95
Greece	85

3. Efficiency wages

- Theories in which higher wages increase worker productivity by:
 - attracting higher quality job applicants
 - increasing worker effort, reducing “shirking”
 - reducing turnover, which is costly to firms
 - improving health of workers
(in developing countries)
- Firms willingly pay above-equilibrium wages to raise productivity.

Why is there unemployment?

- Higher rates of job separation, s , will also lead to more long-run unemployment.
- What would cause s to increase?
- One answer: sectoral shifts!!

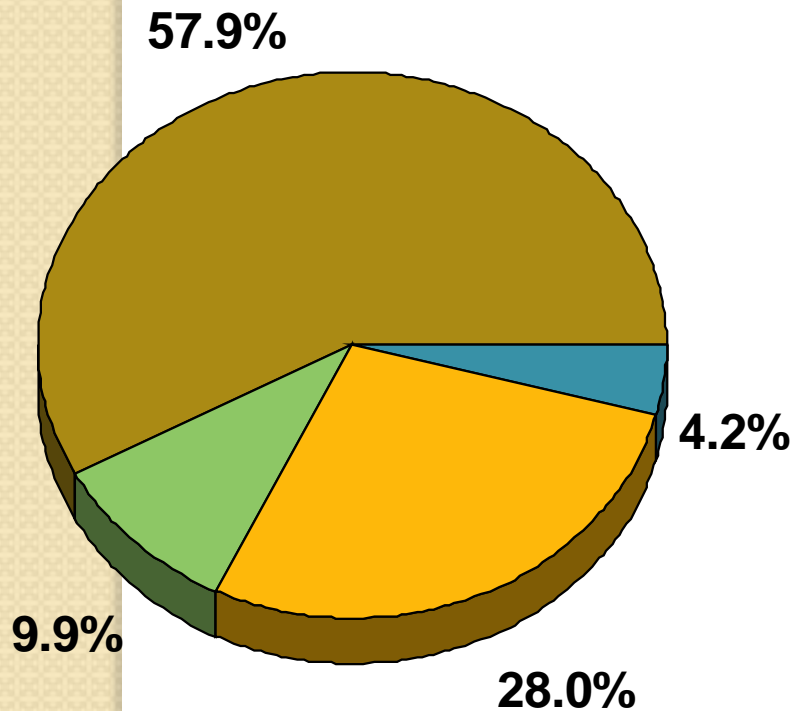
Sectoral shifts

- def: Changes in the composition of demand among industries or regions.
- *example: Technological change*
more jobs repairing computers,
fewer jobs repairing typewriters
- *example: A new international trade agreement*
labor demand increases in export sectors,
decreases in import-competing sectors

CASE STUDY: Structural change over the long run

- Agriculture
- Manufacturing
- Other industry
- Services

1960



2009

