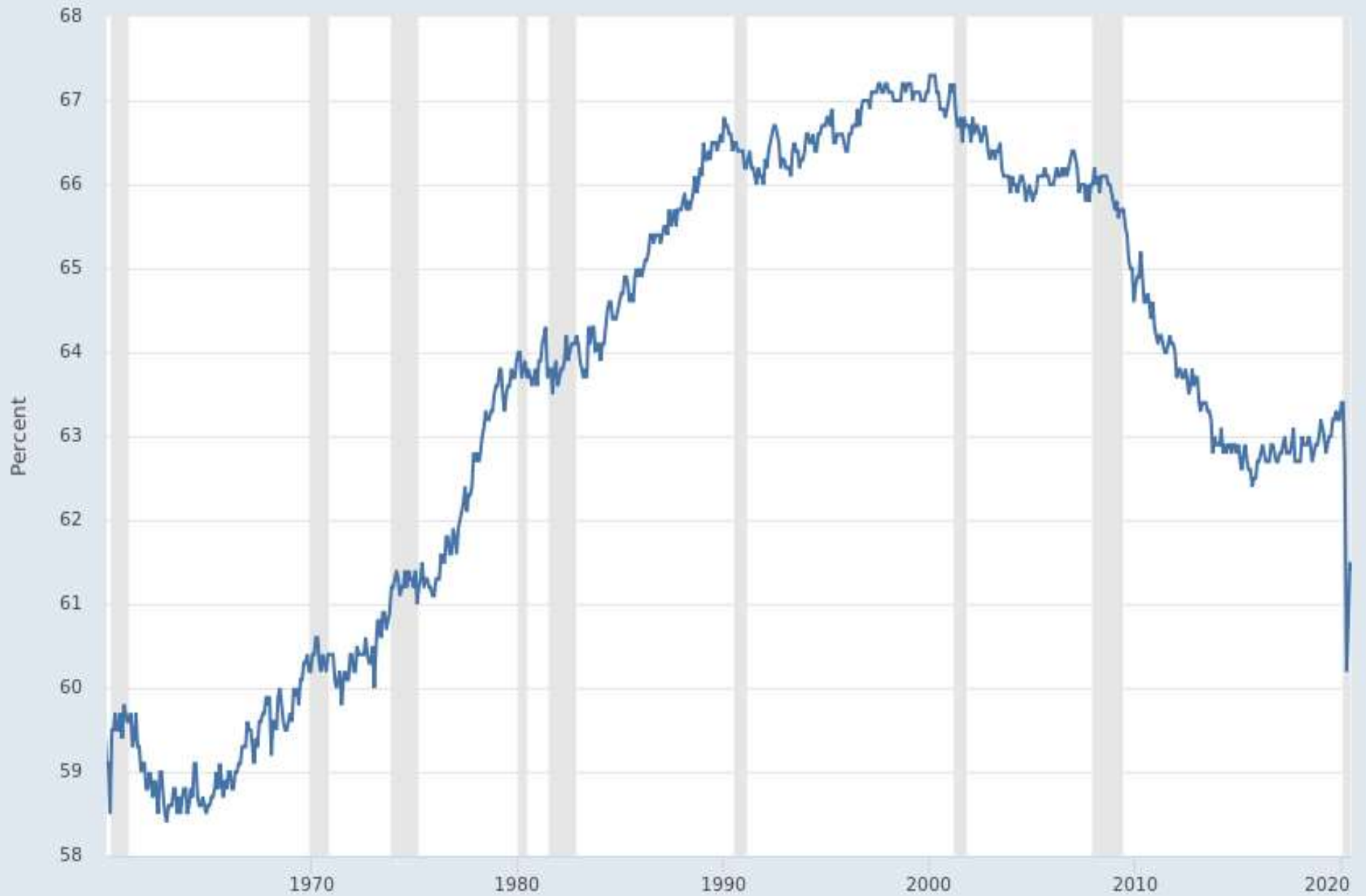


Unemployment, Job Creation, and Job Destruction

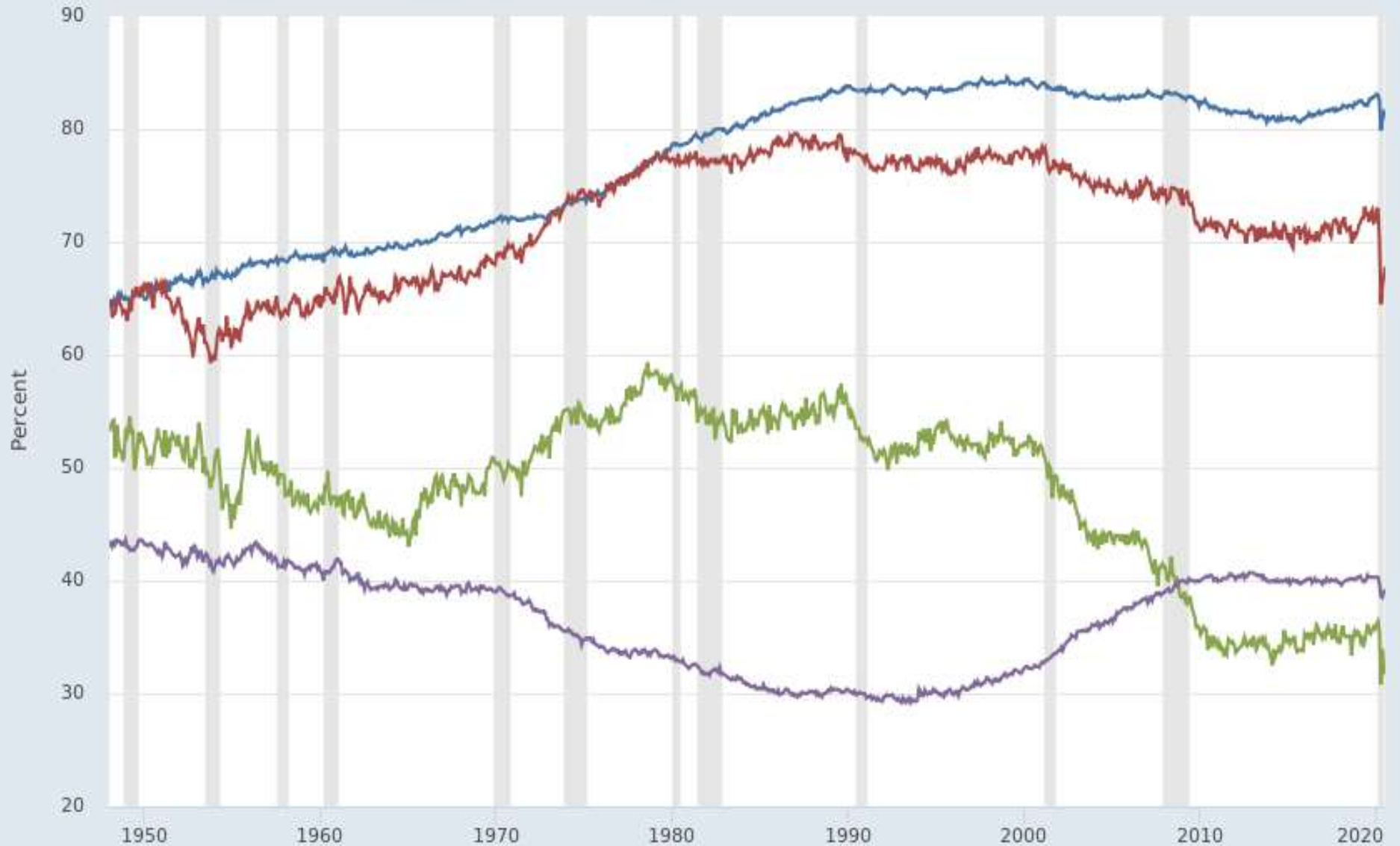
Measuring unemployment

- A. The labor force is all non-institutionalized adults 16 and over (adult population) who are working plus those who are unemployed.
- B. All non-institutionalized adults 16 and over whom are not working and not looking for work are not in the labor force. This group includes retirees, homemakers, discouraged workers, and in some cases students.
- C. People are considered unemployed if they are not working but are looking for work.
- D. The unemployment rate is number of people unemployed divided by the size of the labor force multiplied by 100.

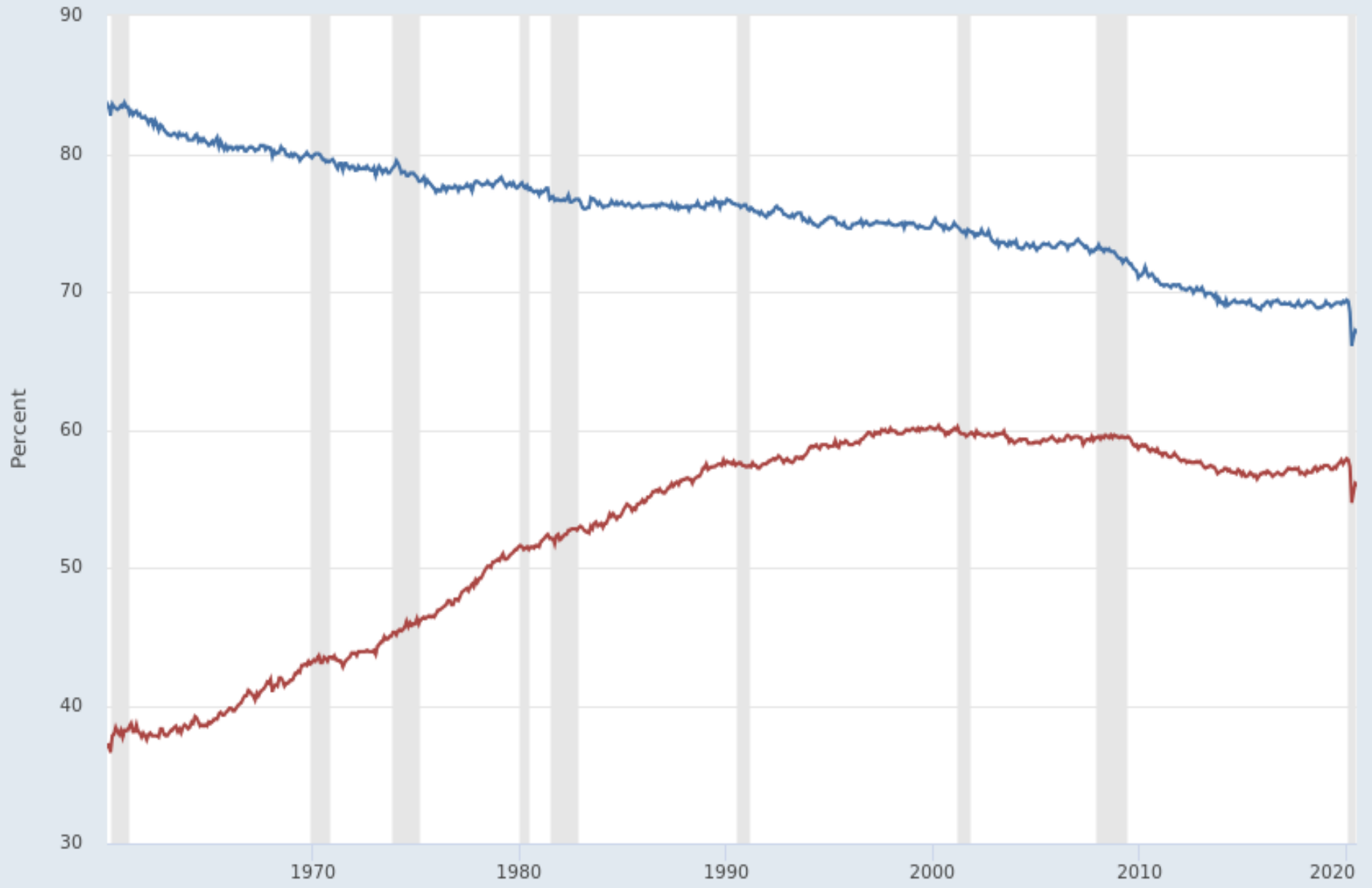
- E. The natural rate of unemployment is the amount of unemployment that is always present in the economy. (about 4.5 to 5.0% in the U.S.)
- F. The labor force participation rate is the percentage of non-institutionalized adults in the labor force.
- G. Ex. Suppose the adult population is 200, the labor force is 140, the number of people not working but looking for work is 7, and the number of retirees is 25.
1. Unemployment rate = $(7/140) \times 100 = 5\%$.
 2. Labor force participation rate = $(140/200) \times 100 = 70\%$.
 3. The number of people working = $140 - 7 = 133$.
 4. The number of people not working = $200 - 133 = 67$



- Labor Force Participation Rate - 25-54 Yrs.
- Labor Force Participation Rate - 20-24 Yrs.
- Labor Force Participation Rate - 16-19 Yrs.
- Labor Force Participation Rate - 55 Yrs. & Over



— Labor Force Participation Rate - Men
— Labor Force Participation Rate - Women



- Labor Force Participation Rate - White
- Labor Force Participation Rate - Black or African American
- Labor Force Participation Rate - Hispanic or Latino



Flows into and out of Unemployment

A. Data on unemployment

1. Almost 3% of the labor force becomes unemployed in the average month. In most months, the same percentage of people find a job.
2. Given the large amount of job movement, most people do not stay unemployed for a long period of time.
3. People enter unemployment by
 - a. losing their jobs.
 - b. entering or reentering the labor force from non-work activities such as education and household production.
4. People leave unemployment by
 - a. finding jobs.

b. dropping out of the labor force.

B. Definitions of unemployment flows

1. The job-finding rate (f) is the number of people who leave unemployment each month divided by the number of unemployed.
2. The unemployment rate (u) is the number of unemployed divided by the labor force.
3. Thus, $f \times u$ is the number of people who leave unemployment each month divided by the labor force.
4. The job-separation rate (s) is number of people who become unemployed each month divided by the labor force.
5. When the unemployment rate is constant, unemployment inflows and outflows are equal, $s - f \times u = 0$, which means the unemployment rate is solved as $u = s/f$.

6. Thus, the long-run value of u , called the natural rate of unemployment (u^*), depends on the job-separation rate (s) and the job-finding rate (f).

C. Flows into unemployment

1. Job destruction

- a. This occurs when an employee is terminated and the position is not refilled.
- b. This type of unemployment always occurs but has its largest bursts around recessions when firms are doing badly.

2. Job loss without destruction

- a. This occurs when a worker loses a job but the employer does not eliminate the position.
- b. Many of these job losses involve temporary jobs, including seasonal employment.

3. Personal transactions

- a. This occurs when people quit their job or they enter the labor force.
- b. Job quitters comprise little of the newly unemployed.
- c. Almost half of the unemployed flows from non-work activities.

D. Flows out of unemployment

1. Statistics

- a. About $\frac{2}{3}$ of the flows out of unemployment end with a successful job search.
- b. About $\frac{1}{3}$ of the flows out of unemployment end with a decision to leave the labor force.
- c. In normal times, most people find a job within two months.
- d. On average, job vacancies last only one to two weeks.

2. The job-finding rate depends on
 - a. the availability of jobs.
 - b. amount of variation in wages and working condition in the job market.
 - c. the cost of waiting until a better offer is received.
 - d. how long the person is expected to last at the job.

The Natural Rate of Unemployment

- A. The natural rate of unemployment (u^*) consists of three types of unemployment.
1. Frictional unemployment is unemployment due to the time to match workers with jobs.
 2. Structural unemployment is unemployment due to a mismatch of skills or geographic location.
 3. Seasonal unemployment is unemployment caused by seasonal shifts in labor demand and supply.
- B. A high natural rate of unemployment occurs in economies with
1. high rates of personal turnover.
 2. high inflow rates and low outflow rates to unemployment.
(recall, $u^* = s/f$)
 3. high rates of job creation and destruction.

4. a low job finding rate (f).

C. Factors that raise the natural rate of unemployment and lower the job-finding rate.

1. Efficiency wages

a. This theory says firms should pay employees above market wages so that the threat of separation is an effective tool to induce additional productivity.

b. In markets where this theory applies, labor supply (N_S) increases but labor demand (N_D) falls. Thus, the job finding rate (f) declines.

2. Union wage premiums lower the job finding rate by increasing N_S and reducing N_D .

3. Minimum wage laws lower the job finding rate by increasing N_S and reducing N_D .

4. Unemployment insurance provides a subsidy for a job search, which encourages search strategies with lower job finding rates.

D. The natural rate of unemployment tends to vary over time due to changing labor market conditions. (see Figure 3.1)

a. During the 1970s and 1980s, the natural rate of unemployment rose.

b. The natural rate of unemployment fell during the 1990s.

c. Reasons for decline in the 1990s include

1. Lower turnover rates. (older labor force)

2. Decline in union membership.

3. Real minimum wage rate fell.

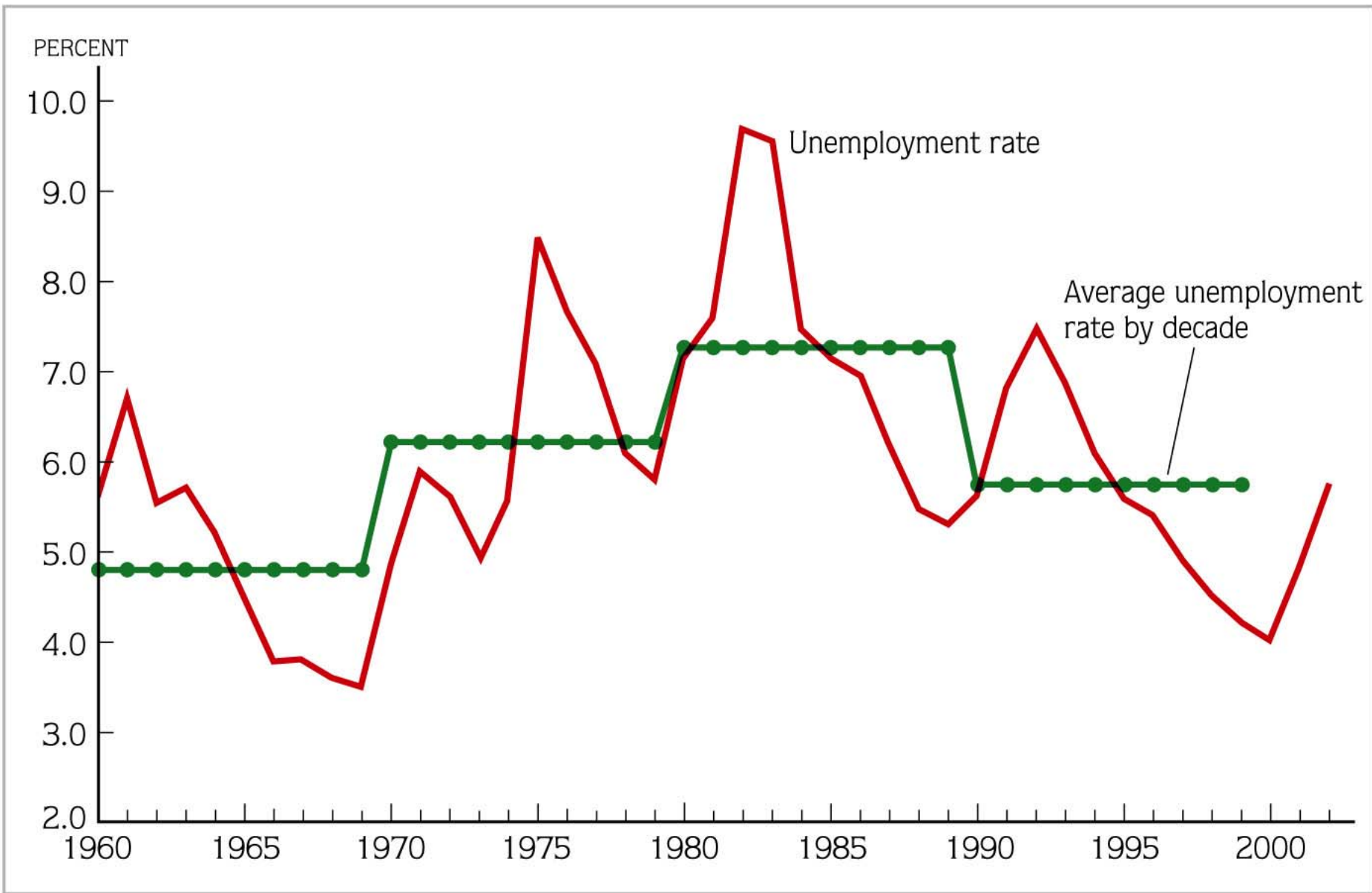


FIGURE 3.1 Unemployment in the United States

E. European Unemployment

1. The natural rate of unemployment rose in European countries during the 1990s. (see Figure 3.3)
2. Reasons for this increase include
 - a. Unemployment benefits are higher and longer last longer.
 - b. A higher real minimum wage rate and greater participation rates in unions.



FIGURE 3.3 European Unemployment (top)

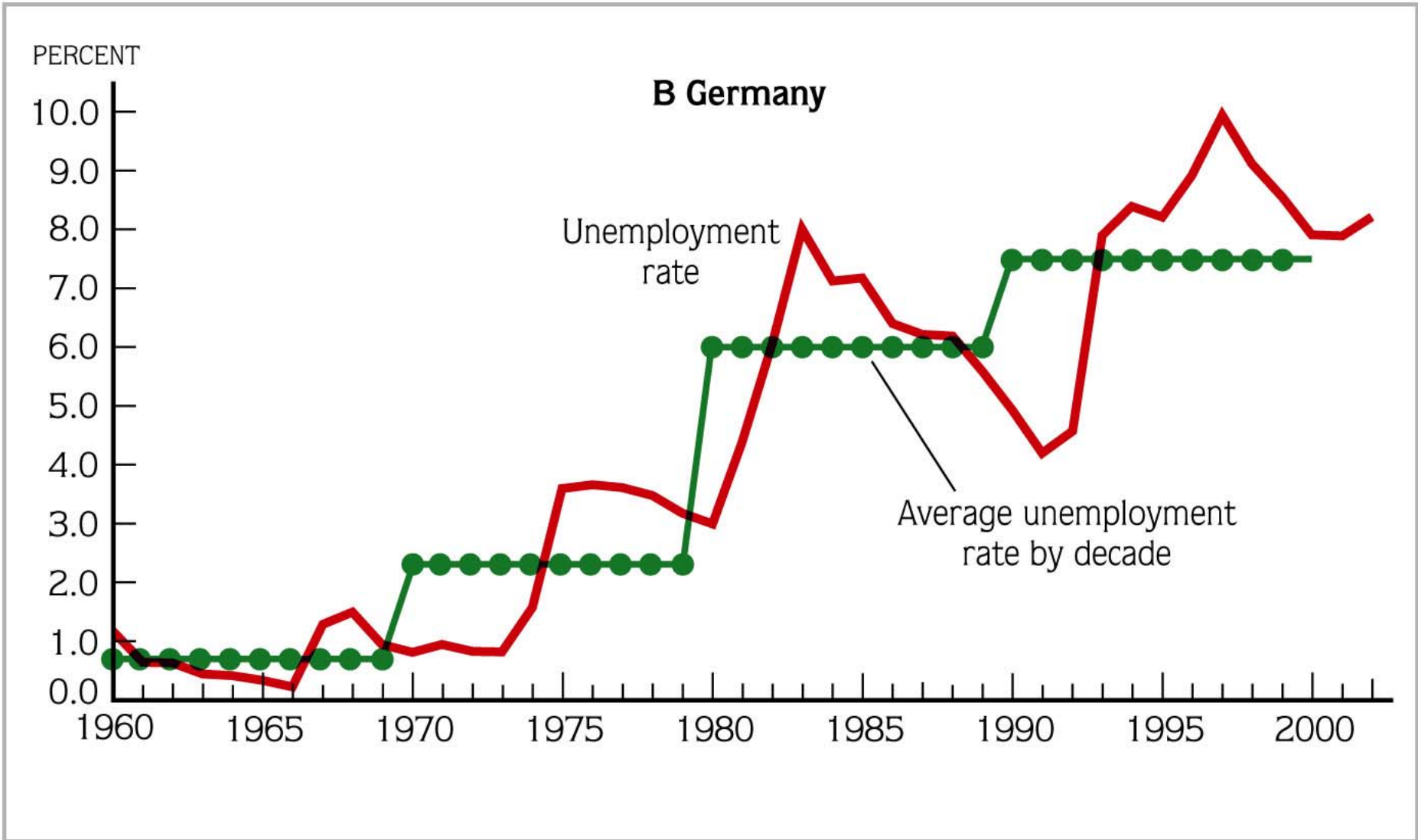


FIGURE 3.3 European Unemployment (middle)

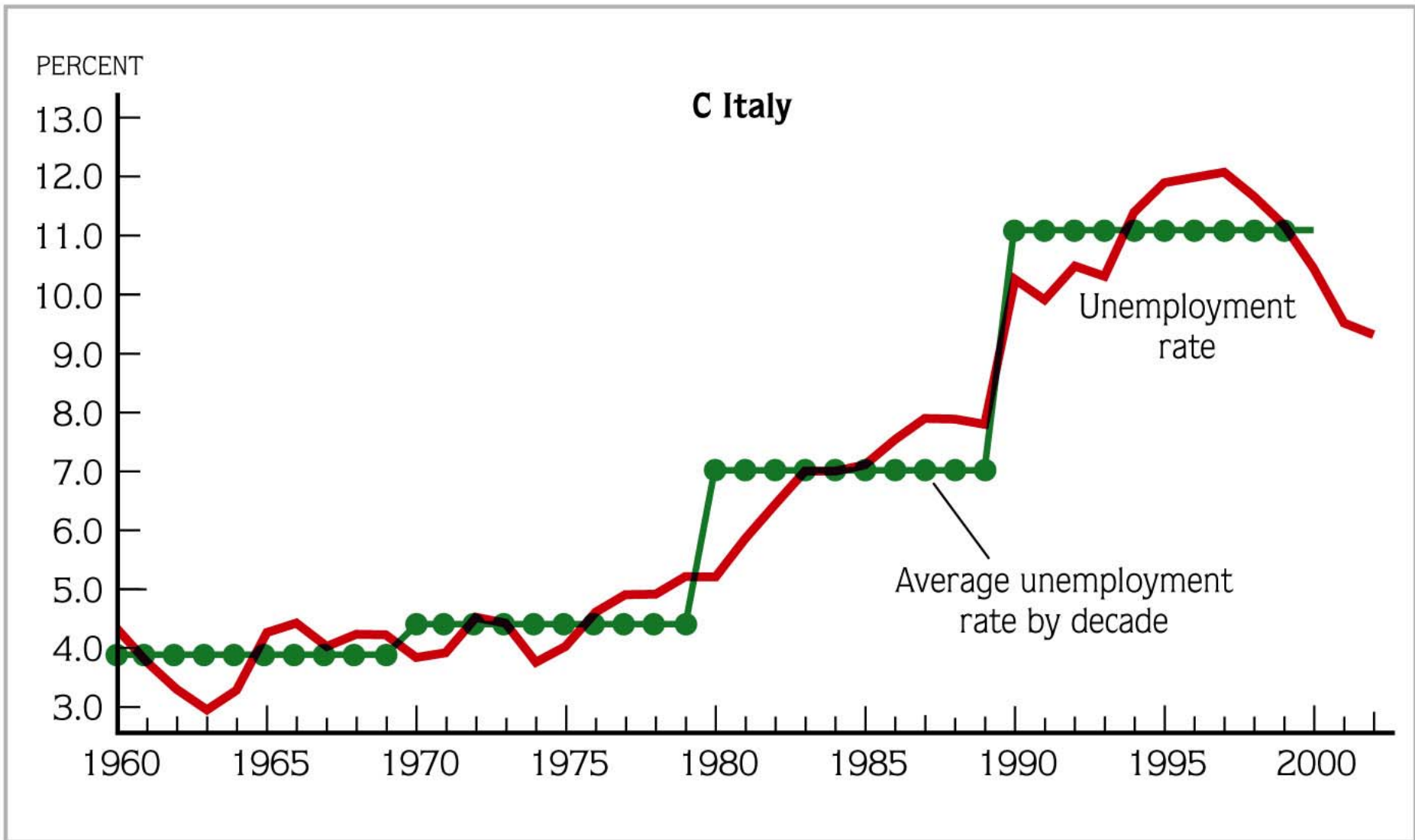


FIGURE 3.3 European Unemployment (bottom)

Unemployment over the Business Cycle

A. Changes in unemployment flows

1. Job destruction rises during recessions. (see Figure 3.4)
2. Inflows into unemployment remain strong after a burst of job destruction.
3. The unemployment rate remains high for a few years after a burst of job destruction as people flow in and out of unemployment as they search for a job with a good fit.

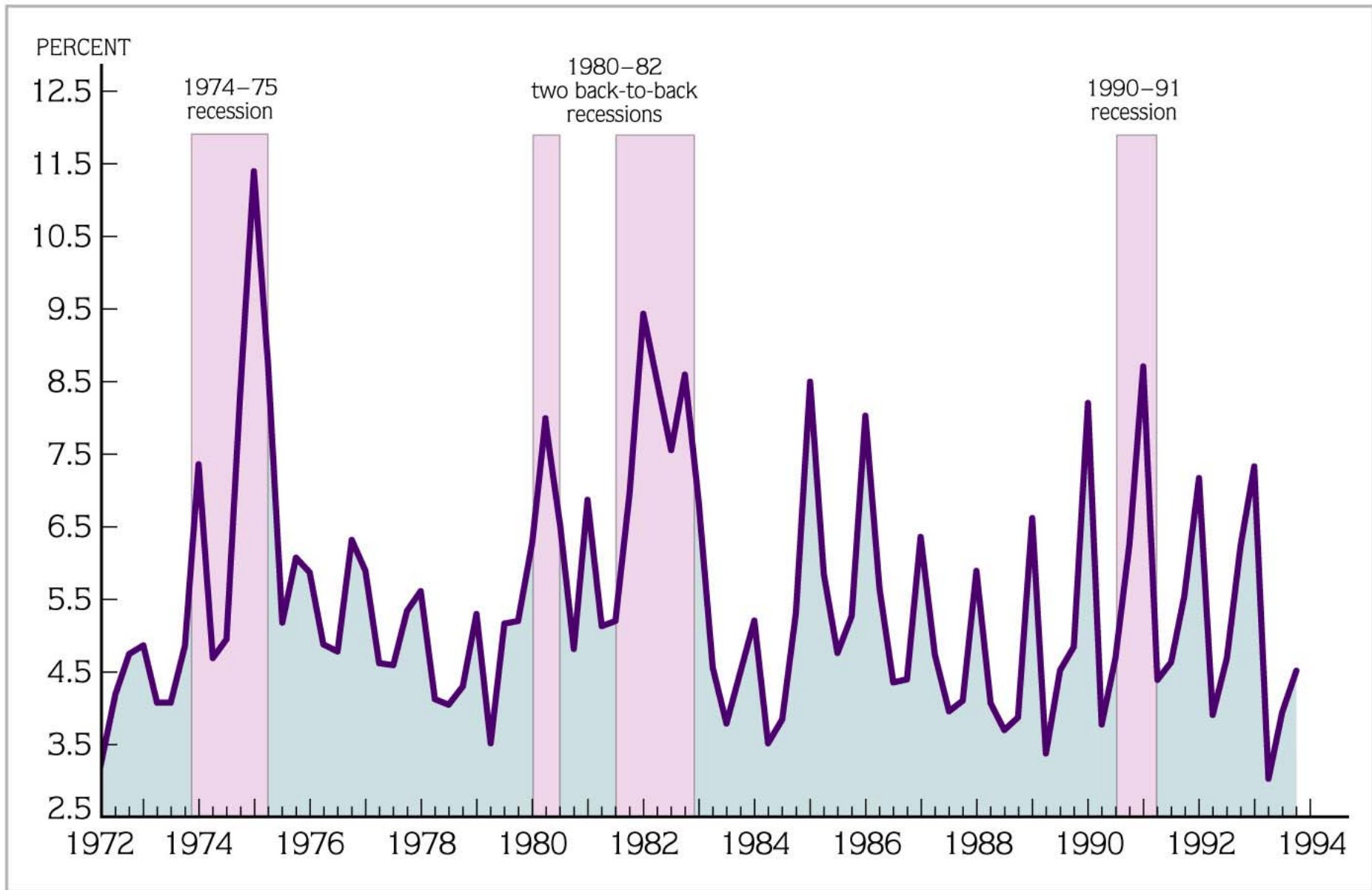


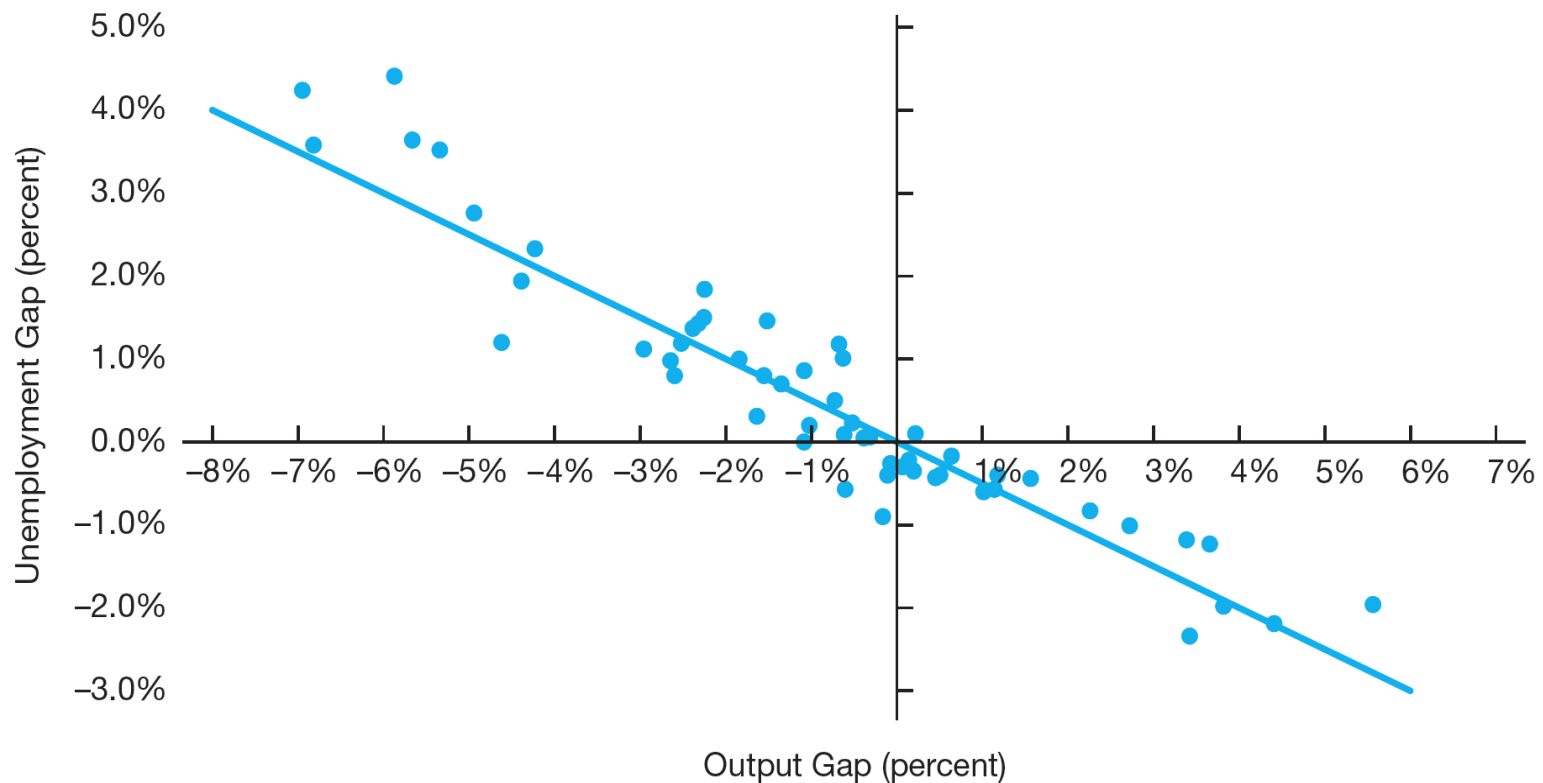
FIGURE 3.4 Job Destruction Rate in Manufacturing

B. Okun's Law

1. This law says that for every percentage point the unemployment rate (u) is above its natural rate (u^*), real GDP (Y) is 2% below its potential (Y^*).

$$(Y - Y^*)/Y^* = -2 \times (u - u^*)$$

2. Okun's Law: U.S. Data from 1960-2014



2. Ex. Suppose the unemployment rate is 5.6% and the natural rate of unemployment is 5.0%. Calculate the output gap?

$$u = 0.056 \text{ and } u^* = 0.050$$

$$(Y - Y^*)/Y^* = -2 \times (u - u^*)$$

$$(Y - Y^*)/Y^* = -2 \times (0.056 - 0.050)$$

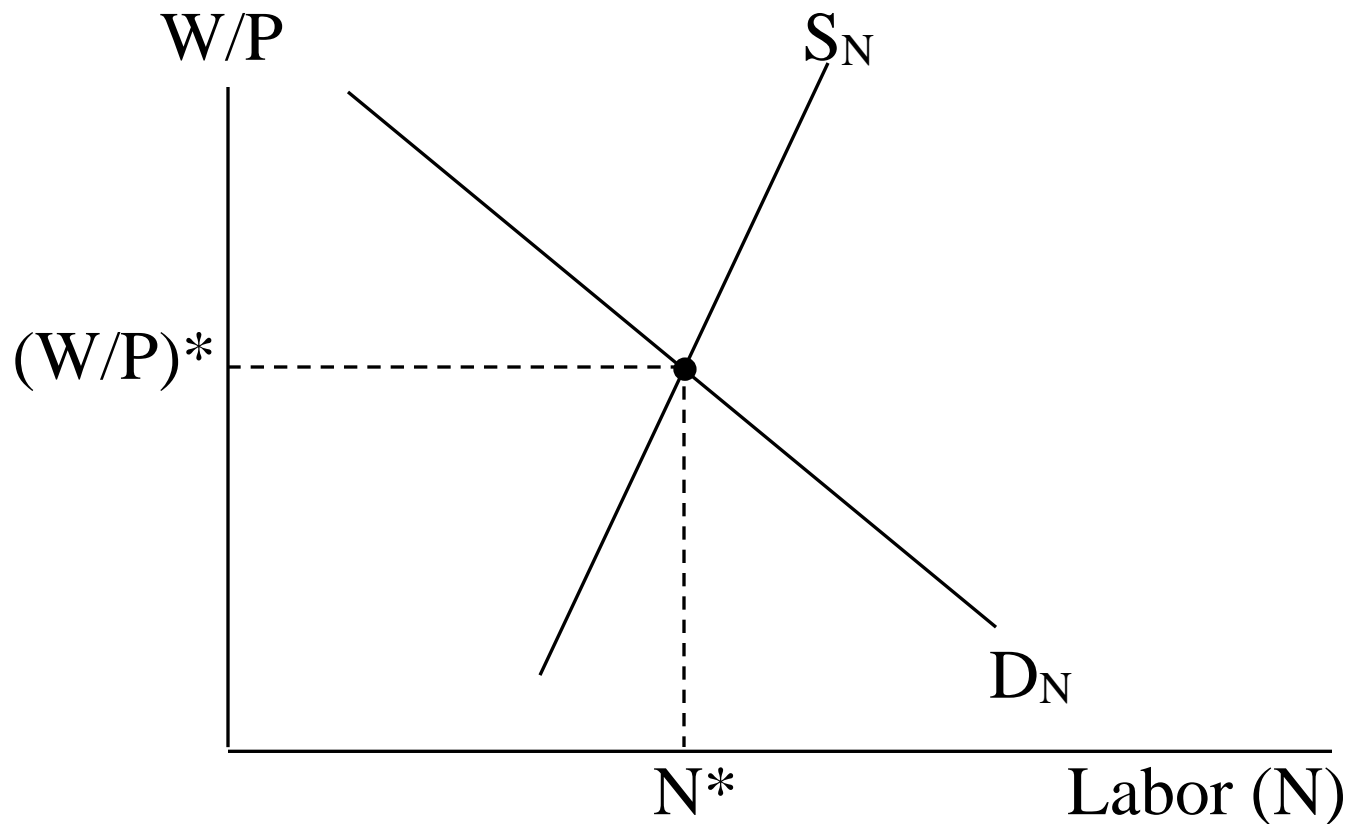
$$(Y - Y^*)/Y^* = -2 \times (0.006)$$

$$(Y - Y^*)/Y^* = -0.012$$

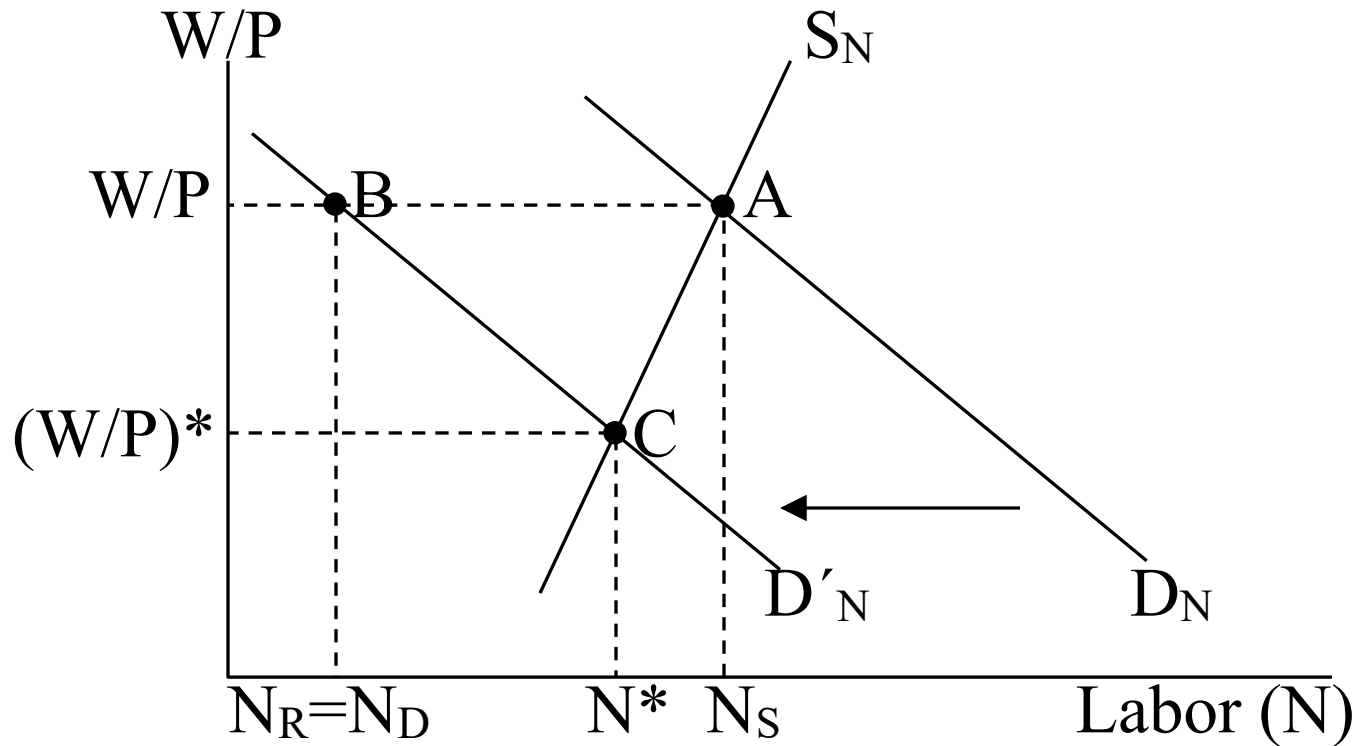
Real GDP is 1.2% below its potential.

Unemployment in a Demand and Supply Framework

A. Standard principles of economics says there should be no unemployment during a recession, because labor demand (N_D) equals labor supply (N_S) at the equilibrium real wage rate $[(W/P)^*]$ That is, $N_D = N_S = N^*$.



- B. In recessions, however, the actual level of employment (N_R) is less than N^* and N_S . That is, $N_D = N_R < N^* < N_S$.
- C. Thus, the number of unemployed equals $N_S - N_D$ in a recession.
- D. One potential reason $N_R < N^*$ during a recession is that W/P is above $(W/P)^*$.



- D. When there is unemployment, employers and workers have incentives to expand employment.
1. Employers can hire workers for a real wage which is less than MP_L .
 2. Unemployed workers prefer to work even at a wage slightly lower than the prevailing real wage.
- E. Empirical evidence suggests these incentives take years to operate, so high unemployment can persist for some time.